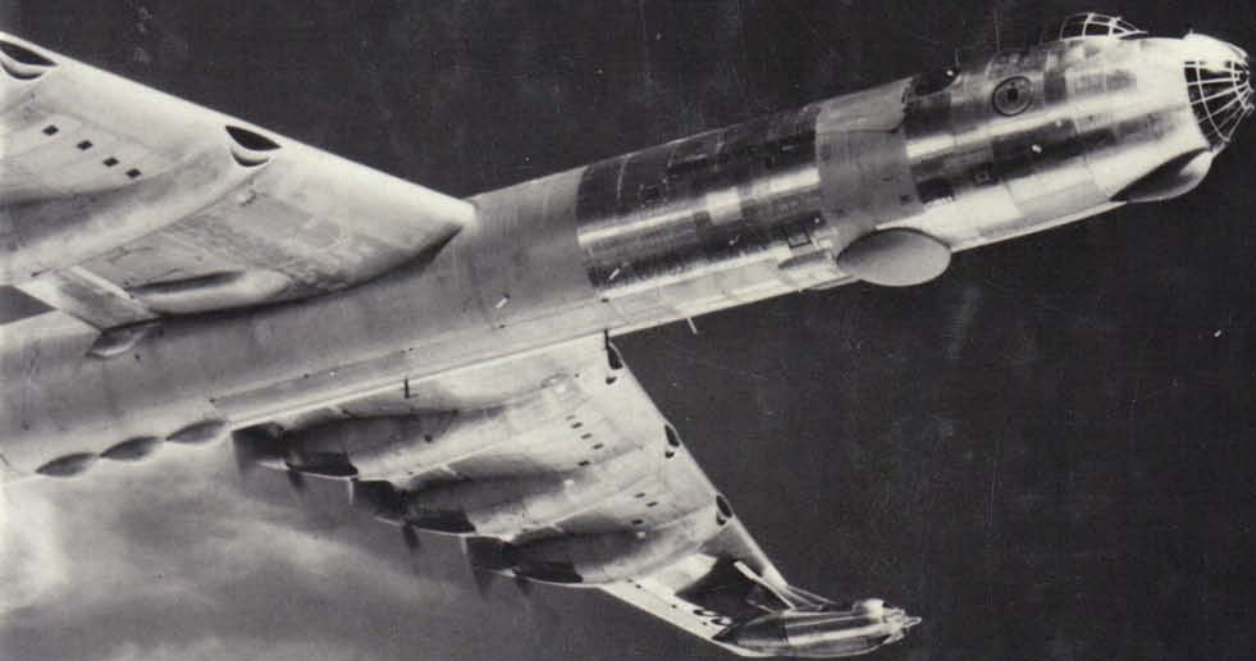


# Strategic Air Command

PEOPLE, AIRCRAFT, AND MISSILES

Edited by Norman Polmar



This official history of the U.S. Air Force's nuclear deterrent bomber and land-based missile force details the leadership, operations, weapons, and aircraft of a crucial air command since 1946. Line drawings, photographs, and tables of specifications fully describe each major type of bomber and missile, as well as specialized aircraft.

*Strategic Air Command* is the first comprehensive description of a famous force; it provides numerous facts useful to the armed services, historians, model-makers, and wargamers. It is the story of a rapidly evolving, highly adaptive force that successfully adjusted to day-by-day changes in technology, policy, tactics, resources, and weapons. It fought two conventional wars and prepared for nuclear war.

Did you know exactly how the Strategic Air Command supported U.S. diplomacy during the critical Cold War years—or that it had a part in a shaky election in Uruguay in 1947—or that it marshalled 101 airplanes over New York City in a massive exercise raid in the same year? What of Berlin, Korea, Lebanon, Suez, Cuba or Viet Nam? SAC was there.

Other interesting items to be found in the Strategic Air Command's history:

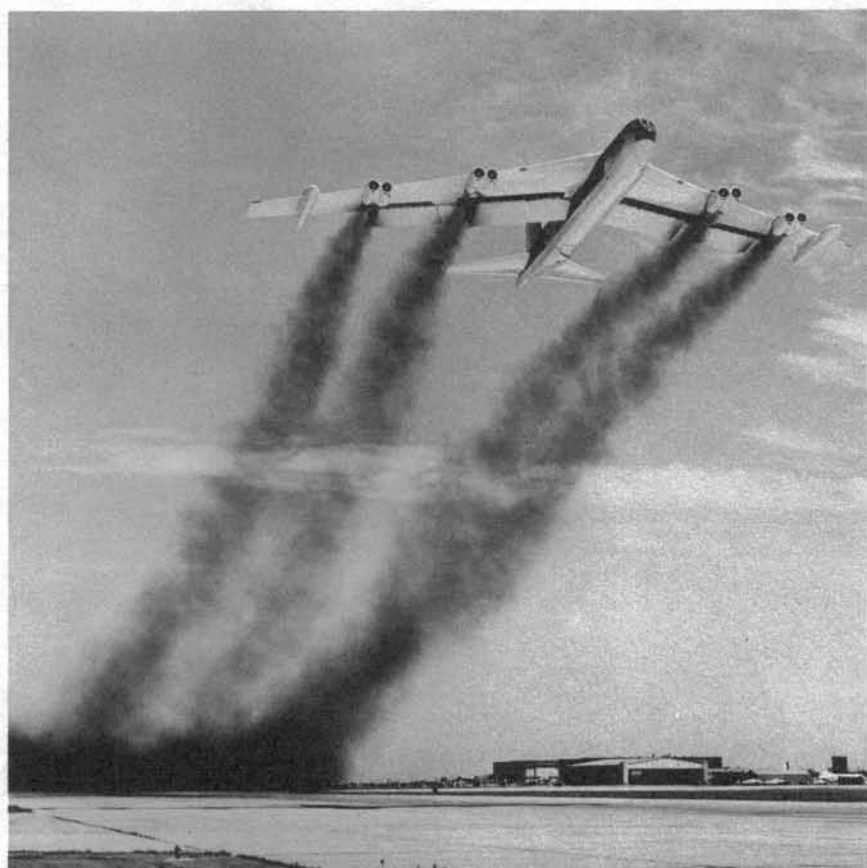
88 of the renowned B-29 bombers were transferred to the RAF in the early 1950s with the designation Washington B.I. They were the only U.S. strategic bombers to serve with a foreign air force in the post World War II period.

At least six U-2s were transferred to Taiwan to avoid the problems of U.S. pilots being lost over mainland China. Five of these aircraft were lost (three reportedly shot down). More than sixteen additional U-2s flown by SAC and the CIA have been lost, including the U-2B piloted by Francis Gary Powers, and another destroyed by Soviet missiles over Cuba in November 1962.

In February 1964, Lockheed's SR-71 Blackbird exceeded 2,000 mph at more than 70,000 feet. This performance was superior to that of any other aircraft of the era.

From its beginning, SAC has dispersed its forces to air bases around the world, but nowhere has cooperation been closer than with Britain's Royal Air Force in the use of equipment, bases, weapons, and in training.

## Strategic Air Command





# Strategic Air Command

## *People, Aircraft, and Missiles*

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Edited by Norman Polmar

Chronology compiled by the Office of the  
Historian of the Strategic Air Command  
under the direction of John T. Bohn

From the Library and Music Collection of:

Ann Hoel-Wickum &

Douglas D. Wickum



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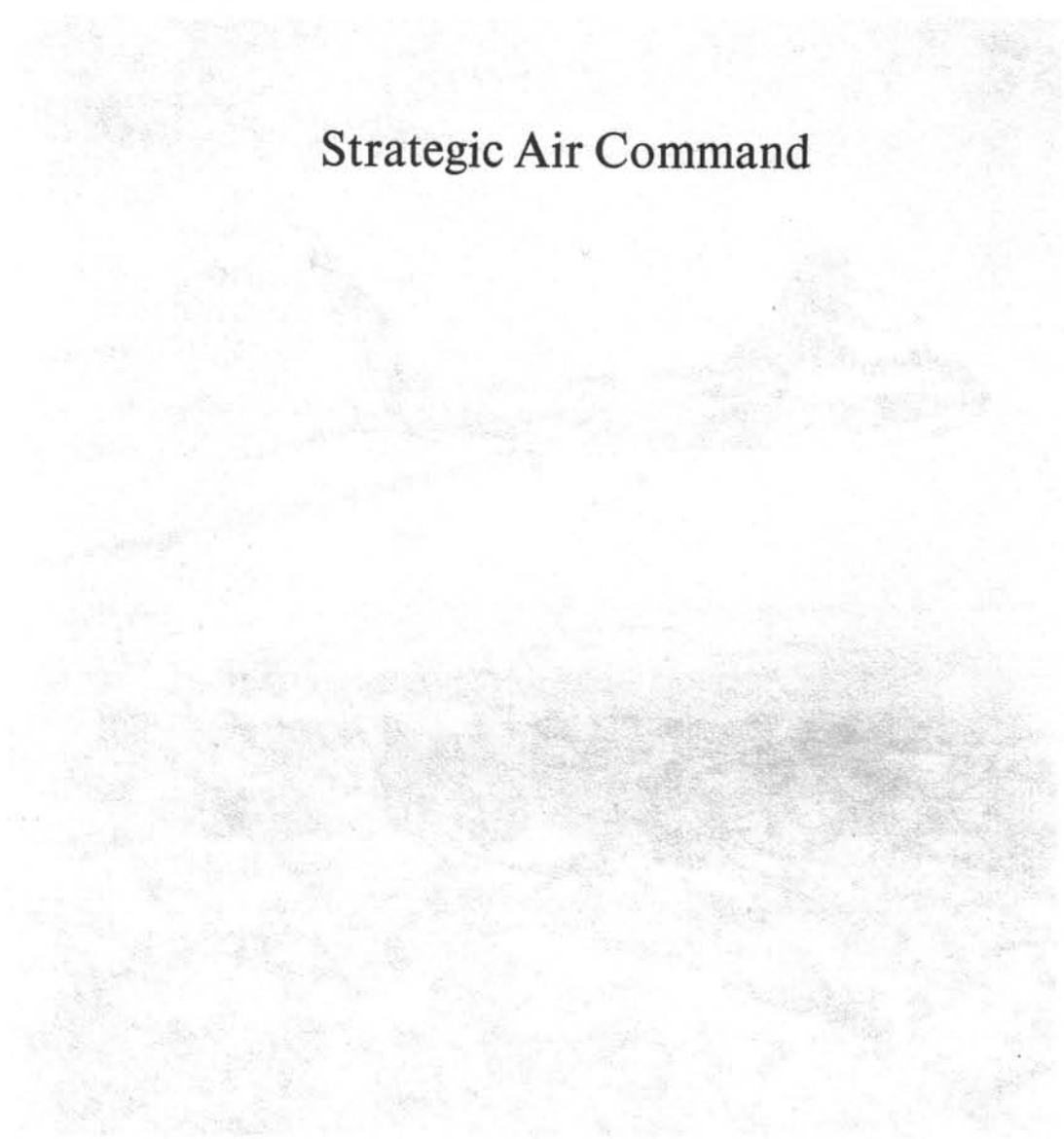
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## Strategic Air Command



## Contents

<i>Preface</i>	vii
Air Order of Battle	1
Organization Chart of SAC	2
Command Leadership	4
Chronology 1946-1976	7
Strategic Bomber Aircraft	143
Strategic Reconnaissance Aircraft	185
Strategic Missiles	199
<i>Glossary</i>	226



## Preface

Silently, at a score of air bases throughout the United States, sentries patrol before giant aircraft, their wings bent low by heavy fuel loads; inside their mammoth fuselages rest several thermo-nuclear weapons. Nearby the bomber crews relax or sleep, only 15 minutes or less from takeoff.

Simultaneously, at scores of underground missile control centers, other Air Force officers live day to day in the presence of controls for launching more than a thousand intercontinental missiles.

At the same time, high above the United States, a large aircraft circles continuously, always relieved "on station," to keep a SAC general airborne with a command staff, with communications available to control all SAC bombers and missiles should the primary SAC command center near Omaha, Nebraska, be destroyed.

These are the principal elements of the land-based strategic striking forces of the United States, the Strategic Air Command. With the U.S. Navy's submarine-launched ballistic missiles, SAC provides the nation's strategic deterrence against nuclear war. These three strategic striking forces—which form the so-called TRIAD—are a primary factor in U.S. defense strategy.

This book describes the land-based components of the TRIAD, the Strategic Air Command. This publication is based largely on the excellent chronology entitled *Development of Strategic Air Command, 1946–1976*, prepared by the Office of the Historian, Headquarters, SAC. The chronology was written by Mr. J.C. Hopkins, assisted by Mr. Sheldon A. Goldberg and Mrs. Marcena R. Clifford of Headquarters, SAC, under the overall direction of Mr. John T. Bohn, Command Historian.

Mr. Norman Polmar, the Editor of this volume, has prepared considerable complementary material to the basic chronology, including material on the leadership, current order of battle and organization of SAC, and detailed descriptions of SAC's principal aircraft and missiles from 1946 onward. Indeed, the aircraft descriptions are probably unique in that this is believed to be the only volume to catalogue all variants of the principal SAC bomber and reconnaissance aircraft.

Although not an actual component of SAC, British strategic forces are highlighted in this volume because of the joint U.S.-British deployment of

the Thor intermediate range ballistic missile, and the regular participation of British aircraft from Bomber Command (later Strike Command) in SAC aircraft competitions. Also, the Royal Air Force was the only foreign service to operate U.S.-built strategic aircraft, flying 88 B-29 Superfortresses during the early 1950s.

The Editor is in debt to several individuals for their assistance in the preparation of this volume, including Messrs. William Green and Gordon Swanborough, Editors of *Air International*; H.D. Hollinger of Boeing Wichita Company; Lieutenant Colonel Michael McRaney, USAF, formerly with Department of Defense's Public Affairs Directorate; Alvin Spivak and Rob Mack of General Dynamics/Fort Worth Division; J.W.R. Taylor, Editor, *Jane's All the World's Aircraft*; and Miss Kathy Cassity of the Air Force Museum.

Several of the photographs used in this volume are from the collection of the late James C. Fahey.



## Air Order of Battle 1979-1980

### *Bomber Aircraft\**

80 B-52D Stratofortress  
270 B-52G/H Stratofortress  
68 FB-111A

### *Tanker Aircraft*

485 KC-135 Stratotanker\*\*

### *Reconnaissance Aircraft*

few U-2  
~30 SR-71A/C Blackbird  
~15 RC-135

### *Command Aircraft\*\*\**

4 E-4A/B National Emergency Airborne Command Post  
~15 EC-135 Airborne Command Post

### *Intercontinental Ballistic Missiles*

54 Titan II  
450 Minuteman II  
550 Minuteman III

### *Attack Missiles*

~1,200 SRAM (carried in B-52s and FB-111s)

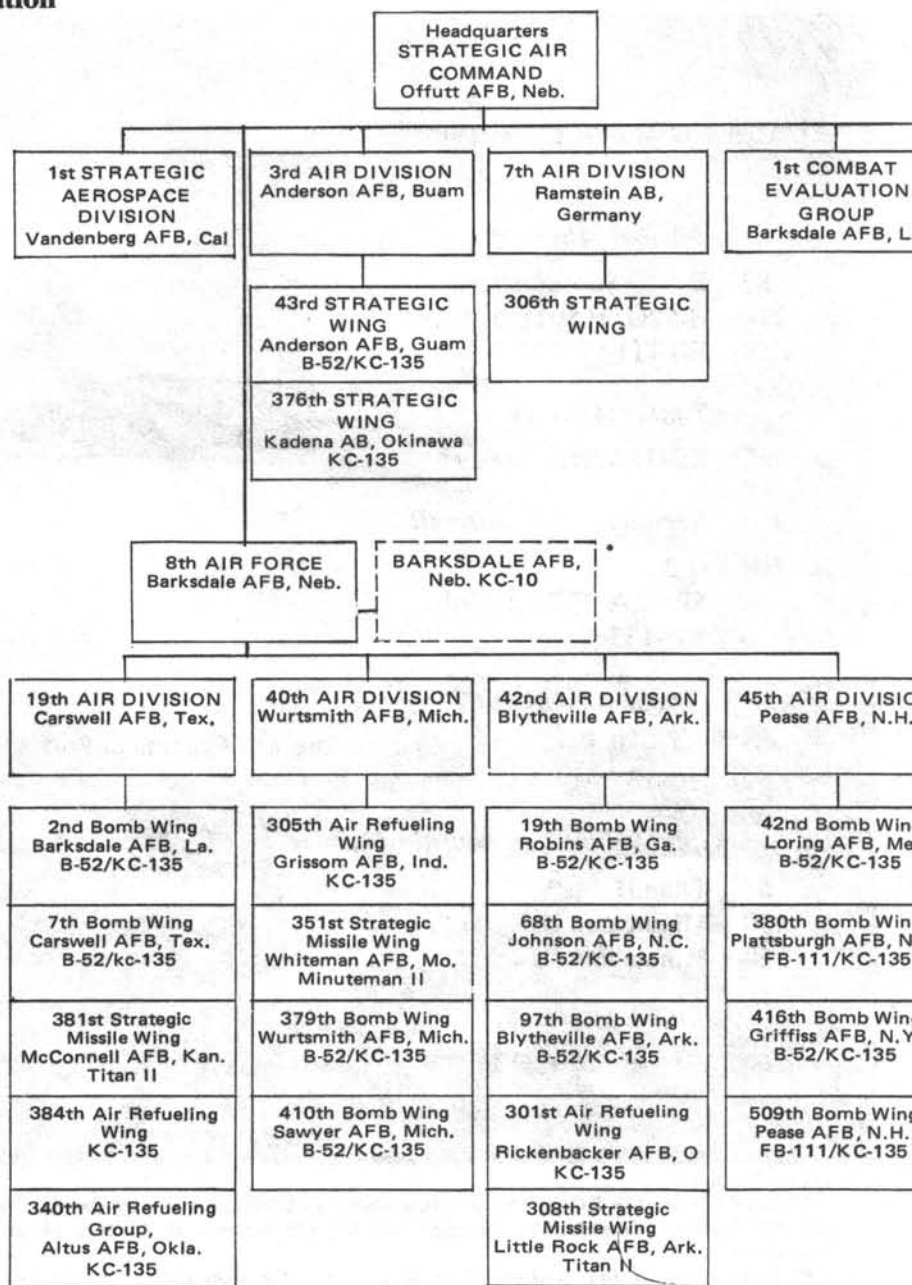
\*An additional 221 B-52 aircraft are in reserve or are flown in non-bomber roles, e.g., test and evaluation.

\*\*An additional 128 KC-135 tankers responsible to SAC are flown by the Air Force Reserve and Air National Guard. SAC manages all KC-135 aircraft in support of all Air Force commands.

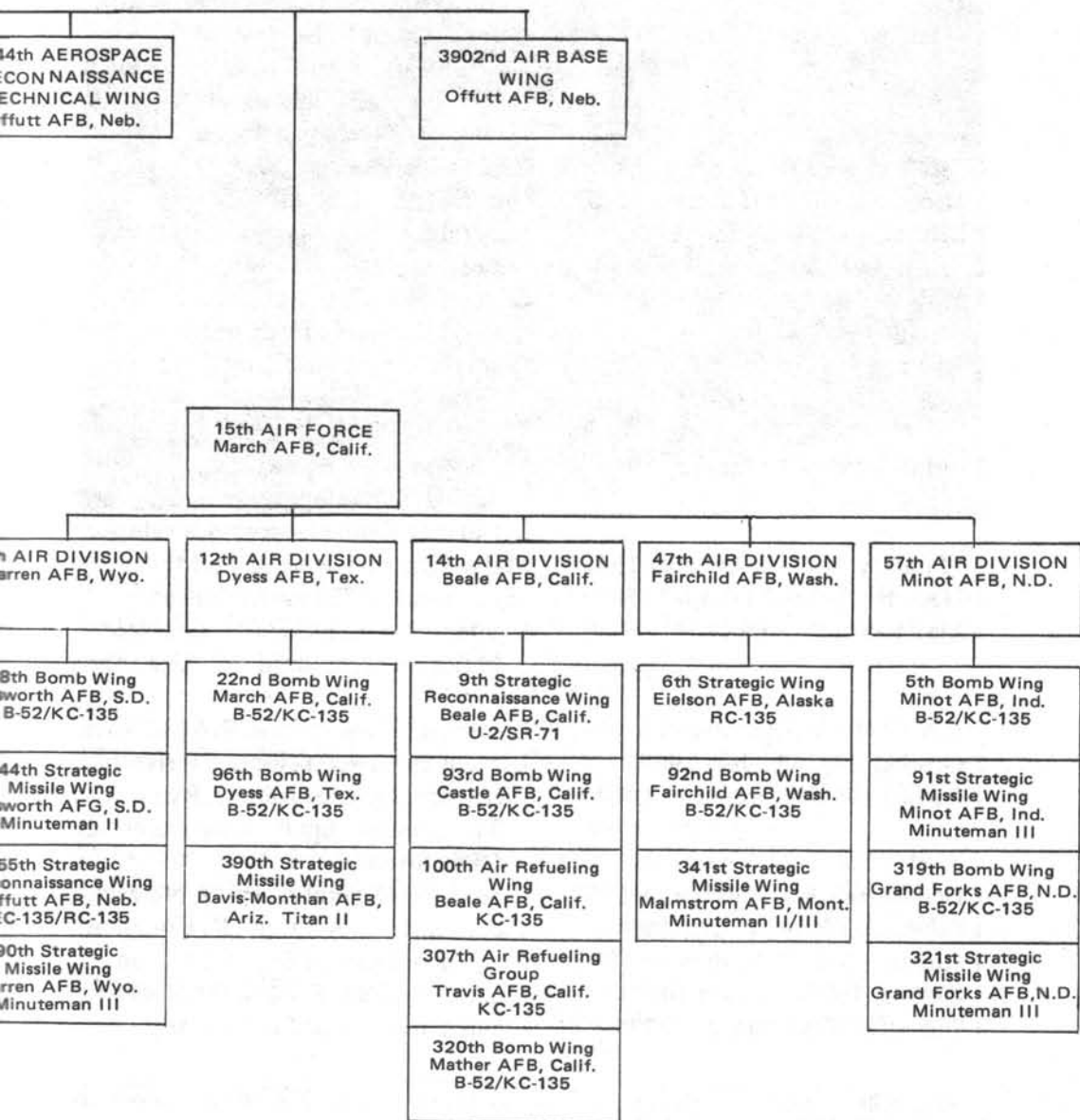
\*\*\*SAC manages the National Emergency Airborne Command Post (NEACP) for the National Command Authority, i.e., the President and Secretary of Defense. The SAC Airborne Command Post—called "Looking Glass"—provides continuous airborne command of SAC bomber and reconnaissance aircraft, and ICBMs.



## Organization



\* KC-10 aerial tanker unit to form with 20 aircraft from 1980 to 1983; no wing assignment at this time.



## Command Leadership

21 March 1946–19 October 1948

19 October 1948–30 June 1957

1 July 1957–30 November 1964

1 December 1964–31 January 1967

1 February 1967–28 July 1968

29 July 1968–30 April 1972

1 May 1972–31 July 1974

1 August 1974–31 July 1977

1 August 1977–present

21 March 1946–10 January 1947

10 January 1947–26 October 1948

26 October 1948–14 April 1954

3 May 1954–30 June 1961

1 July 1961–30 September 1962

1 October 1962–31 July 1964

1 August 1964–1 December 1964

1 December 1964–1 February 1967

1 February 1967–31 July 1969

1 August 1969–30 September 1973

1 October 1973–30 June 1977

1 July 1977–3 December 1977

### *Commander-in-Chief\**

General George C. Kenney

Retained position as Senior U.S. Military Representative, Military Staff Committee of the United Nations until 15 October 1946, at which time he became head of SAC.

General Curtis E. LeMay

Lieutenant general until 29 October 1951; longest tenure of any U.S. military force commander.

General Thomas S. Power

General John D. Ryan

General Joseph J. Nazzaro

General Bruce K. Holloway

General John C. Meyer

General Russell E. Dougherty

General Richard H. Ellis

### *Vice Commander-in-Chief\*\**

Major General St. Clair Streett

Served as acting commander until General Kenney reported for duty.

Major General Clements McMullen

Major General Thomas S. Power

Lieutenant Gen. Francis H. Griswold

Major general until 31 December 1957

Lieutenant General John P. McConnell

Lieutenant General Hunter Harris, Jr.

Lieutenant General John D. Ryan

To general upon assignment as CINCSAC.

Lieutenant General Joseph J. Nazzaro

Lieutenant General Keith K. Compton

Lieutenant General Glen W. Martin

Lieutenant General James M. Keck

Lieutenant General James E. Hill

\*Originally Commanding General; changed to Commander in June 1953; changed to Commander-in-Chief in April 1955.

\*\*Originally Deputy Commander; changed to Vice Commander in October 1952; changed to Vice Commander-in-Chief in April 1955.



**General George C. Kenney**

6 December 1977–27 June 1978  
28 June 1978–present

26 April 1946–3 March 1947  
3 March 1947–28 October 1948

28 October 1948–2 November 1948  
2 November 1948–19 Sept. 1952

20 September 1952–8 Sept. 1956

9 September 1956–14 Dec. 1957

Lieutenant General Edgar S. Harris, Jr.  
Lieutenant Gen. Lloyd R. Leavitt, Jr.

#### *Chief of Staff*

Brigadier Gen. Frederic H. Smith, Jr.  
Major General McMullen  
Additional to his duties as Deputy  
Commander SAC.

Brigadier Gen. David W. Hutchinson  
Major General August W. Kissner  
Brigadier general until 12 January  
1950.

Major Gen. Richard M. Montgomery  
Brigadier general until December  
1955.

Major General David Wade  
Brigadier general until 5 August  
1957.





**General Curtis E. LeMay**

15 December 1957–31 July 1961

1 August 1961–8 July 1962

9 July 1962–16 June 1963

17 June 1963–31 July 1964

1 August 1964–4 July 1966

5 July 1966–21 January 1969

22 January 1969–31 May 1972

1 June 1972–23 April 1973

24 April 1973–13 September 1973

17 September 1973–10 January 1974

27 February 1974–26 May 1975

27 May 1975–present

27 May 1975–1 July 1976

1 August 1976–5 December 1977

9 January 1978–27 June 1978

28 June 1978–present



**General Richard H. Ellis**

Major General Edwin B. Broadhurst  
Brigadier general until 10 March 1958.

Major General James H. Walsh

Major General Hewitt T. Wheless

Major General Keith K. Compton

Major General Charles M. Eisenhart

Major General James B. Knapp

Major General Timothy J. Dacey, Jr.  
Brigadier general until 1 August 1969.

Major General Warren D. Johnson

Major General George H. McKee

Major General James R. Allen

Major General Martin G. Colladay

Major Gen. Andrew B. Anderson, Jr.

Major Gen. Andrew B. Anderson, Jr.

Major General Edgar S. Harris, Jr.

Major Gen. Lloyd R. Leavitt, Jr.

Major General Earl G. Peck

## Resources

<i>Personnel</i>	37,092 (4,319 officers, 27,871 airmen, 4,902 civilians)
<i>Tactical Aircraft</i>	279 (148 B-29, 85 P-51, 31 F-2, 15 C-54) *
<i>Aircraft Units</i>	Nine Very Heavy Bomb Groups (30 UE), six with B-29s and three without aircraft assigned Two Fighter Groups (75 UE), one with P-51s and one without aircraft assigned One Reconnaissance Wing with F-2s and one Reconnaissance Squadron with F-13s One Air Transport Unit (10 UE) with C-54s
<i>Active Bases</i>	18 in the continental limits of the United States (CONUS)

## Organization

*Establishment of SAC.* On 21 March, the Strategic Air Command was established as one of the three major combat commands of the U.S. Army Air Forces. General Carl Spaatz, Commanding General of the Army Air Forces, issued the new command's first mission:

*The mission.* "The Strategic Air Command will be prepared to conduct long-range offensive operations in any part of the world either independently or in cooperation with land and Naval forces; to conduct maximum range reconnaissance over land or sea either independently or in cooperation with land and naval forces; to provide combat units capable of intense and sustained combat operations employing the latest and most advanced weapons; to train units and personnel for the maintenance of the Strategic Forces in all parts of the world; to perform such special missions as the Commanding General, Army Air Force may direct."

*Command status, 21 March.* Creation of the new command was achieved by redesignating Headquarters Continental Air Forces as Headquarters Strategic Air Command. Resources of the Continental Air Forces were divided among three new commands—Strategic Air Command, Tactical Air Command, and Air Defense Command.

\*About 30 of the B-29s were configured to carry nuclear weapons.



**The B-29 Superfortress was the outstanding heavy bomber of World War II. At the end of the war it was the only aircraft that could carry the atomic bomb and became the backbone of the newly formed Strategic Air Command. (Boeing photo)**

SAC received most of these resources, including the headquarters at Bolling Field, Washington, D. C.; Second Air Force, whose headquarters was located at Colorado Springs, Colorado; the 311th Reconnaissance Wing, with its headquarters at MacDill Field, Florida; and approximately 100,000 personnel, 22 major installations and over 30 minor bases, and a conglomerate of bomber, fighter, reconnaissance, and support aircraft numbering about 1,300. With postwar demobilization still in process, these resources would be drastically reduced by the end of the year.

*Headquarters.* On 21 October, Headquarters SAC officially opened at Andrews Field, Maryland, having moved there from Bolling during the period from 15 through 20 October.

*Fifteenth Air Force.* Effective 31 March, Headquarters Fifteenth Air Force, which had been assigned to the Strategic Air Command on 21 March, was activated at Colorado Springs and absorbed the personnel and functions of Headquarters Second Air Force. The latter was inactivated and assigned in an inactive status to the Air Defense Command.

Effective 1 May, the 311th Reconnaissance Wing, which had been assigned directly to Headquarters SAC since 21 March, was further assigned to Fifteenth Air Force.

*Eighth Air Force.* On 7 June, in preparation for the assignment of a second numbered air force to the Strategic Air Command, Headquarters Eighth Air Force was relieved from assignment to the United States Army Forces, Pacific and moved to MacDill Field, Florida, and assigned to SAC. On 1 August, Headquarters Eighth Air Force was attached for administrative purposes to headquarters Fifteenth Air Force.

Having been relieved from attachment to Headquarters Fifteenth Air Force, Headquarters Eighth Air Force moved from MacDill to Fort Worth Army Air Field, Texas, on 1 November. Headquarters Eighth Air Force was manned largely with personnel from Headquarters 58th Bombardment Wing, Very Heavy, which was also located at Fort Worth. Approximately one-half of the fully equipped combat units of Fifteenth Air Force were transferred to the Eighth on 1 November, but they remained under the Fifteenth's administrative control until 19 November, at which time Headquarters Eighth Air Force became operational.

## Operations

*Operation Crossroads.* In developing an atomic bombing force, SAC relied heavily upon the 509th Composite Group (redesignated a very heavy bomb group on 30 July). When SAC began operations, the 509th was the only group capable of delivering the A-bomb, having delivered two weapons at Hiroshima and Nagasaki. It had just been committed to drop a third one as part of the Operation Crossroads test at Bikini Atoll in July of 1946.

Approved by President Truman in early January, Operation Crossroads was a gigantic peacetime exercise. It involved the efforts of approximately 42,000 people, including Army and Navy personnel and civilian scientists, operating under a provisional organization called Task Force One. The objective was to study the nuclear effects of two A-bombs, one to be dropped from a B-29 and exploded in the air and the other to be attached to a ship and exploded underwater.

Task Group 1.5, the Army Air Force's element of this gigantic force, consisted of approximately 2,200 people drawn largely from SAC and placed under the command of Brigadier General Roger M. Ramey, Commanding General of the 58th Bomb Wing. General Ramey's group was responsible for delivering the first A-bomb and providing aircraft to photograph the explosion and collect scientific data.

On 1 July, "Dave's Dream," a B-29 piloted by Major Woodrow P. Swancutt and assigned to the 509th Group, temporarily stationed at Kwajalein, dropped a Nagasaki-type A-bomb on 73 ships lying off Bikini. Five ships were sunk and nine badly damaged. Task Group 1.5 also participated in the second phase of Operation Crossroads, the underwater explosion on 25 July, by providing numerous aircraft for photographic, data collection, and support functions.



So successful were these two explosions that plans for a third detonation, another underwater explosion of greater depth, were shelved.

*First TDY of an entire wing.* In October, the 28th Bomb Group, a B-29 unit stationed at Grand Island Army Air Field, Nebraska, deployed to Elmen-dorf, Alaska, for six months temporary duty (TDY) training in arctic operations. This was the first time an entire SAC bomb group was sent outside the continental limits of the United States. In April 1947, the 28th returned to its new home at Rapid City Army Air Field, South Dakota.

*SAC bombers as instrument of international diplomacy*—In mid-November, Colonel James C. Selser, Jr., Commander of the 43d Bomb Group at Davis-Monthan Field, Arizona, led a flight of six B-29s to Rhein-Main Airfield, Germany. Two C-54s of the 1st Air Transport Unit, Roswell Field, New Mexico, accompanied the B-29s with spare parts and supplies. The aircraft remained in Europe for almost two weeks.

The Superfortresses flew along the border of Soviet-occupied territory, visited capitals of several free European countries, and surveyed numerous airdromes for possible use by B-29s. This flight, which was planned and executed after two U.S. Army C-47s were shot down over Yugoslavia, is regarded as the first instance in which SAC bombers were used as an instrument of international diplomacy. While the flight could not be regarded as a direct threat to Russia, the presence of B-29s and their reputation as carriers of the A-bomb served notice that the United States was not abandoning Western Europe to the Communists. In early December, the Selser flight returned home.

## Resources

<i>Personnel</i>	49,589 (5,175 officers, 39,307 airmen, 5,107 civilians)
<i>Tactical Aircraft</i>	713 (319 B-29, 230 P-51, 120 P-80, 9 C-54, and 35 F-2, F-9, F-13, and FB-17)
<i>Aircraft Units</i>	16 Very Heavy Bomb Groups (30 UE), 11 with B-29s and five without aircraft Five Fighter Groups (75 UE), three with P-51s and two with P-80s Two Reconnaissance Groups, one (12 UE) equipped with F-9s and one (24 UE) without aircraft, and one Reconnaissance Squadron (24 UE) with F-13s One Air Transport Unit (10 UE) with C-54s
<i>Active Bases</i>	16 CONUS bases

## Organization

*Creation of the Air Force 18 September.* The Department of the Air Force was created as a military service coequal to the Department of the Army and the Department of the Navy under the Department of Defense.

*Reorganization of SAC.* SAC inherited the organizational machinery of the Continental Air Forces, designed primarily to support a peacetime demobilization program. General Kenney soon found it necessary to make major adjustments throughout the command. He assigned the reorganization job to Major General Clements McMullen, who was brought in from the Eighth Air Force to become Deputy Commander. Imbued with his own ideas of economy and spurred on by an austere defense budget, which forced the Air Force to adopt a 55 rather than a 70-group program, McMullen immediately began to reorganize the command, to trim manpower at all levels, and to centralize command jurisdiction functions in Headquarters SAC. By subordinating small special staff agencies under larger general staff agencies, A-1 through A-6, he reduced from 23 to six the number of staff agencies reporting directly to the command section.

In reorganizing the headquarters, General McMullen abolished several positions. He personally took over the duties of Chief of Staff in addition to his own duties as Deputy Commander. In the move to centralize control, several units were relieved from command jurisdiction to Fifteenth Air Force and assigned directly to Headquarters SAC. These included the 311th Reconnaissance

sance Wing; the 4th, 56th, and 82d Fighter Groups; and the 307th Bomb Group. Fifteenth Air Force was left as strictly a bomber command, controlling the fully equipped 28th, 93d, and 97th Bomb Groups and the partially equipped 92d, 98th and 301st Bomb Groups. Eighth Air Force, which was left untouched by the centralization action, controlled three B-29 groups, the 7th, 43d, and 509th, the newly activated 2d Bomb Group, the 27th and 33d Fighter Groups, and the 1st Air Transport Unit.

*Hobson Reorganization Plan.* In October and December, SAC combat units began reorganizing under the Hobson Plan. Under this plan, wing headquarters bearing the same numerical designation as the bombardment and fighter groups were organized and placed in a supervisory capacity over all combat and support elements on a base. Prior to this reorganization, the base or installation commander, who was often a non-flying administrator, was the immediate superior of the combat group commander.

The Hobson Plan reversed this unwieldy arrangement. It elevated the wing headquarters to the highest echelon of command and placed the wing commander in the position of directing rather than requesting that his flying activities be supported. The flying activities remained assigned to the combat group, which was normally composed of three combat squadrons and a headquarters. The group commander was directly responsible to the wing commander. The remaining functions were divided among three groups, maintenance and supply, airdrome, and medical, each of which was assigned to the wing.

## Operations

*Aerial mapping missions.* Although the total number of personnel assigned to SAC increased only moderately during the year, the scope and volume of operations expanded considerably. The 311th Reconnaissance Wing was involved in Operation Eardrum, the aerial mapping of Greenland, and in surveying an Iceland to Alaska "top-of-the-world" air route.

Between May and October, B-29 squadrons trained on a rotational basis at Yokota Air Base, Japan.

*SAC goodwill flights.* SAC units flew training and "goodwill" flights to England, West Germany, Italy, France, Holland, and Belgium. A Good Neighbor Flight was made to South America in conjunction with the inauguration of the new Uruguayan President, Tomas Beretta, on 1 March. This flight of six B-29s of the 97th Bomb Group, Smoky Hill Army Air Field, Kansas, was led by Major General Charles F. Born, Commanding General of the Fifteenth Air Force.

*First SAC maximum effort mission.* Within the United States, SAC units flew many simulated attacks on major metropolitan areas, such as Los Angeles, Chicago, and New York. The most significant flight was over New York on 16 May, when 101 B-29s theoretically dropped their bombs in a maximum effort mission. Another 30 B-29s remained at their home bases; they were unable to take off because of maintenance and supply problems.

## Resources

<i>Personnel</i>	51,965 (5,562 officers, 40,038 airmen, 6,365 civilians)
<i>Tactical Aircraft</i>	837 (35 B-36, 35 B-50, 486 B-29, 131 F-51, 81 F-82, 24 RB-17, 30 RB-29, 4 RC-45, 11 C-54)
<i>Aircraft Units</i>	Two Heavy Bomb Groups (18 UE), one with B-36s and one without aircraft 12 Medium Bomb Groups, 11 (five 45 UE and six 30 UE) equipped with B-29s and one (45 UE) equipped with both B-29s and B-50s Two Fighter Groups (75 UE), one with F-51s and one with F-82s Two Strategic Reconnaissance Groups (12 UE) and two Reconnaissance Squadrons (12 UE) with RB-17s and RB-29s One Strategic Support Unit (10 UE) with C-54s Two Medium Air Refueling Squadrons (20 UE) which were beginning to receive KB-29 tankers
<i>Active Bases</i>	21 CONUS bases; Effective 13 January, all installations formerly designated U.S. Army airfields were redesignated as U.S. Air Force bases. This slightly belated action was a consequence of the creation of the Department of the Air Force as one of the three coequal services of the Department of Defense, which had been effected on 18 September 1947.

## Organization

*Headquarters SAC moved to Offutt.* Movement of Headquarters Strategic Air Command from Andrews Air Force Base, Maryland, to Offutt Air Force Base, Nebraska, was made on 9 November.

Effective 16 April, Headquarters 311th Reconnaissance Wing was redesignated Headquarters 311th Air Division, Reconnaissance. On 20 July, the organization moved from Andrews Air Force Base, Maryland, to Topeka Air Force Base, Kansas.

## Operations

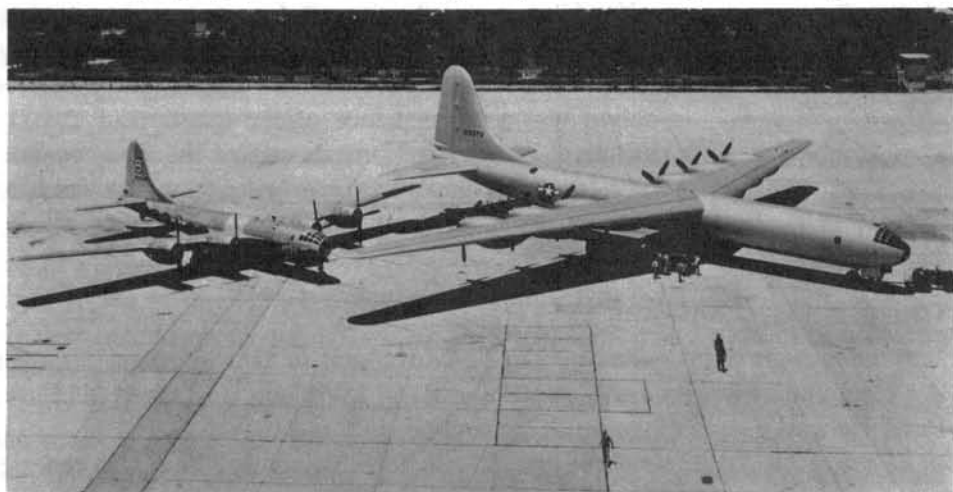
*First B-50 delivered.* On 20 February, the first B-50, "A" model serial number 46-017, was delivered to the 43d Bomb Wing at Davis-Monthan Air Force Base, Arizona. The B-50 was essentially an improved version of the B-29 Superfortress with more powerful engines and a taller fin and rudder. Like some B-29s it was equipped for inflight refueling.

*First B-36 delivered.* On 26 June, the first B-36, "A" model serial number 44-92004, was delivered to the 7th Bomb Group at Carswell Air Force Base, Texas. Nicknamed "The Peacemaker," the B-36 was the world's largest bomber. It measured 160 feet in length and had a wing span of 230 feet.

The early models, those delivered in 1948 and throughout most of 1949, were powered by six pusher-type, propeller-driven engines, while those models produced in late 1949 and thereafter were also outfitted with four turbojet engines paired in pods under each wing. The B-36 had many "bugs" that had to be worked out and it did not become fully operational until 1951. The introduction of the B-36 as an operational aircraft brought about a change in the designation of bombardment aircraft. The B-29s and the B-50s, which had been designated as "very heavy," were designated "medium" aircraft, while the new B-36 was designated a "heavy" bomber. The term "very heavy" was dropped.

*First air refueling squadrons.* In preparation for the assignment of tanker aircraft, the 43d and 509th Air Refueling Squadrons were activated at Davis-Monthan Air Force Base, Arizona, and Roswell Air Force Base, New Mexico, on 18 June. Assigned to the 43d and 509th Bomb Groups, these two squadrons were the first air refueling units in the United States Air Force. They began receiving tanker aircraft in late 1948.

These first tankers were simply B-29s modified to carry and dispense fuel in the air. Employing the British-developed system of inflight refueling, that is,



The prototype XB-36 dwarfs a B-29, the largest combat aircraft of World War II. The prototype XB-36 flew for the first time on 8 August 1946, with deliveries to SAC beginning two years later.





A B-29 fitted as a "flying boom" tanker refuels another B-29 during early trials of in-flight refueling for strategic bombers. The Air Force adopted the rigid-boom technique over the flexible hose concept because the boom permitted a faster fuel flow rate and higher altitude refuelings. (Boeing photo)

the use of trailing hoses and grapple hooks, these tankers were designated KB-29Ms.

*Berlin Blockade.* When the Berlin Blockade began in late June, one B-29 squadron of the 301st Bomb Group was on rotational training at Furstenfeldbruck, Germany. SAC immediately ordered the 301st Group's other two B-29 squadrons to move to Goose Bay, Labrador, in preparation for movement to Germany. Two additional B-29 Groups, the 28th and 307th, were placed on alert and ordered to be ready to deploy within 12 and three hours, respectively, after notice, while the rest of the SAC force was placed on 24-hour alert. By early July, the 301st Group's other two B-29 squadrons were in place at Furstenfeldbruck. Later in the month, the 28th Bomb Group moved from Rapid City Air Force Base, South Dakota, to RAF Scampton, England, and the 307th deployed from MacDill Air Force Base, Florida, to RAF Stations Marham and Waddington, England.

*Around-the-world flight.* On 22 July, three B-29s of the 43d Bomb Group departed Davis-Monthan Air Force Base, Arizona, on a round-the-world flight attempt. The flight was scheduled to take 14 days, but one extra day was required due to the crash of one B-29 in the Arabian Sea. The other two air-



craft made eight en route stops and completed the 20,000 mile flight in 103 hours and 50 minutes of actual flight time. The two aircraft completing the flight were "Gas Gobbler," commanded by Lt. Col. R. W. Kline, and "Lucky Lady," commanded by 1st Lt. A. M. Neal. They landed at Davis-Monthan on 6 August.

*B-36 and B-50 nonstop flights to Hawaii.* From 7 to 9 December, a B-36B and a B-50A, two of SAC's newly assigned bombers, completed round-trip non-stop flights from Carswell Air Force Base, Texas, to Hawaii. The B-36, assigned to the 7th Bomb Group and commanded by Major J. D. Bartlett, flew over 8,000 miles without landing in 35 hours and 30 minutes. The B-50, a 43d Bomb Group aircraft, was able to make the flight over a much longer route of 9,870 miles in 41 hours and 40 minutes. It received three inflight refuelings from KB-29 tankers of the 43d and 509th Air Refueling Squadrons.

### **Bombing Competition**

Confronted with serious manning, supply, and administrative problems throughout its first two years of existence, the Strategic Air Command was unable to devote much time to bombing practice. Bombing accuracy fell far below desired standards. Hoping to stimulate interest in improving bombing accuracy, General Kenney decided to hold a bombing tournament, which came to be called the SAC Bombing Competition. The first competition was held at Castle Air Force Base, California, from 20 to 27 June. Ten B-29 groups participated, with each group being represented by three crews. Each crew accomplished three visual bomb releases and three radar releases from 25,000 feet altitude. Eighth Air Force's five entries swept the first five places in the competition, with the 43d Bomb Group being the top unit. Trophies were presented to the 43d and to the winning crew, a 509th Bomb Group entry commanded by 1st Lt. M. J. Jones.

## Resources

<i>Personnel</i>	71,490 (10,050 officers, 53,460 airmen, 7,980 civilians)
<i>Tactical Aircraft</i>	868 (390 B-29, 36 B-36, 99 B-50, 67 KB-29, 62 RB-29, 18 RB-17, 19 C-54, 11 C-82, 5 YC-97, 80 F-86, 81 F-82)
<i>Aircraft Units</i>	<p>Three Heavy Bomb Groups (18 UE), one with B-36s and two in process of equipping with B-36s</p> <p>11 Medium Bomb Groups, eight (three 45 UE and five 30 UE) with B-29s and three (45 UE) with B-29s and B-50s</p> <p>Two Fighter Groups (75 UE), one with F-86s and one with F-82s</p> <p>Three Reconnaissance Groups, one (48 UE) with RB-29s, RB-17s, and C-82s and two (one 36 UE and one 18 UE) with RB-29s</p> <p>Two Strategic Support Squadrons (12 UE) with C-54s and YC-97s</p> <p>Six Air Refueling Squadrons (20 UE), two with KB-29s, two partially equipped with KB-29s, and two with no aircraft assigned</p>
<i>Active Bases</i>	17 CONUS bases

## Organization

On 6 April, the Strategic Air Command assumed jurisdiction over the 3d Air Division "for activities pertaining to Strategic Air Command units on rotational duty in the United Kingdom." Major General Leon W. Johnson, Commanding General of the 3d Air Division, reported directly to General LeMay on matters pertaining to the rotational units. The 3d Air Division was assigned directly to Headquarters USAF.

*Second Air Force assigned to SAC.* Effective 1 November, the Second Air Force was established and assigned to SAC and Headquarters Second Air Force was activated at Barksdale Air Force Base, Louisiana. It was manned from the personnel resources of Headquarters 311th Air Division, which had relocated from Forbes Air Force Base, Kansas, to Barksdale in late October. The 311th Air Division was discontinued.

*Movement of Fifteenth Air Force.* On 7 November, Headquarters Fifteenth Air Force began operations at March Air Force Base, California, having moved there from Ent Air Force Base, Colorado.

## **Operations**

The Air Force gave top priority to manning and equipping the SAC force. Training of the medium-range B-29 and B-50 bombers was intensified. In order to familiarize personnel with operating conditions outside the United States, units were deployed on a rotational schedule for limited periods of time to selected overseas bases. Accuracy of high altitude bombing was substantially improved. Combat crew proficiency was raised through the system of "lead crew" training which had proved so successful during World War II. The SAC Lead Crew School was established at Walker Air Force Base, New Mexico.

The tempo of the command's operations and the constantly recurring rotational flights greatly increased SAC's effectiveness, but they subjected flight personnel to tensions that in many ways resembled those of combat.

In spite of arduous duty and extended absences from their families, about 50 percent of the command's airmen discharged at the end of their term of service reenlisted to fill their own vacancies. Although the reenlistment rate was far below the desired level, it was exceptionally high when viewed against the background of frequent movement and inadequate housing.

*"Lucky Lady II" flight and first Mackay Trophy.* On 2 March, the "Lucky Lady II," a B-50A (serial number 46-010) of the 43d Bomb Group, completed the first nonstop round-the-world flight, having covered 23,452 miles in 94 hours and one minute. The crew of 14 was commanded by Captain James Gallagher. Carswell Air Force Base, Texas, was the place of origin and return. "Lucky Lady II" was refueled four times in the air by KB-29 tankers of the 43d Air Refueling Squadron.

For this outstanding flight, the "Lucky Lady II" crew received numerous awards and decorations. Foremost among the awards was the Mackay Trophy, given annually by the National Aeronautic Association for the outstanding flight of the year.

*B-36 record flight.* On 12 March, a B-36 of the 7th Bomb Group set a long distance record when it completed a 9,600-mile flight in 43 hours and 37 minutes without refueling. The flight began and ended at Fort Worth, Texas. The aircraft, with a crew of 12, was piloted by Captain Roy Showalter.

In addition to this long-range flight demonstration, numerous test flights were conducted in order to evaluate the speed, altitude performance, weight-carrying capacity, armament, and ability of the B-36 to penetrate a realistic air defense system.

SAC continued to play an important role in the field of atomic energy through the development of strategies, tactics, techniques, and logistics to assure the most effective combat employment of atomic weapons in the national interest. Secretary of the Air Force W. Stuart Symington pointed out

at the end of the year: "Existence of this strategic atomic striking force is the greatest deterrent in the world today to the start of another global war."

## **Bombing Competition**

*Second competition.* Convinced that the first competition had produced better bombing and a competitive spirit among crews, General LeMay decided to make it an annual affair. Held from 3 through 7 October, the second competition included 12 bomb groups: three B-36, seven B-29, and two B-50. Competition headquarters was at Davis-Monthan Air Force Base, Arizona, which was also the staging base for B-29s and B-50s. The B-36 crews operated out of their home bases. Ground rules and bombing requirements were the same as in 1948. Deprived of any major honors in the first meet, the Fifteenth Air Force's groups were ready for the 1949 competition and won top honors. The 93d Bomb Group, which had to switch to B-29s after fuel leaks developed in its new B-50s, won the unit award for bombing. A 28th Bomb Group B-36 crew won the individual crew trophy.

*Spot Promotions Initiated.* After the October Bombing Competition, General LeMay obtained approval to promote "on-the-spot" 237 outstanding aircraft commanders and other crew members who held the grade of first lieutenant to the temporary grade of captain. Expanded in 1950 and 1951 to include temporary promotions to major, lieutenant colonel, technical sergeant, and master sergeant, spot promotions soon became closely associated with SAC combat crew duty. They were designed to increase crew stability and proficiency and to reward outstanding combat crews. They were awarded to all eligible members of a combat crew. Winning crews in the top events of the SAC Bombing Competition usually received spot promotions. Loss of the temporary promotions by the entire crew or individual members followed failure to maintain high standards of performance.

# 1950

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## **Resources**

<i>Personnel</i>	85,473 (10,600 officers, 66,600 airmen, 8,273 civilians)
<i>Tactical Aircraft</i>	962 (38 B-36, 286 B-29, 196 B-50, 126 KB-29, 20 RB-36, 19 RB-50, 46 RB-29, 27 RB-45, 4 C-82, 14 C-97, 19 C-124, 167 F-84)
<i>Aircraft Units</i>	<p>Two Heavy Bomb Groups (18 UE) with B-36s</p> <p>Two Heavy Reconnaissance Groups, one (18 UE) with RB-36s, and one (22 UE) converting from B-29s to RB-36s</p> <p>12 Medium Bomb Groups, (45 UE), four with B-50s, seven with B-29s, and one with B-29s and B-50s</p> <p>Two Medium Strategic Reconnaissance Groups, one (36 UE) with RB-45s and one (45 UE), with RB-29s, RB-50s, and C-82s</p> <p>One RB-29 Reconnaissance Squadron (12 UE) on temporary duty with Far East Air Forces</p> <p>Three Fighter Groups (75 UE), two fully equipped with F-84s and one partially equipped with F-84s</p> <p>Three Strategic Support Squadrons (12 UE), one with C-97s, one with C-124s, and one partially equipped with C-124s</p> <p>12 Medium Air Refueling Squadrons (eight 20 UE and four 12 UE), four fully equipped with KB-29s, five in process of equipping with KB-29s, and three with no aircraft assigned</p>
<i>Active Bases</i>	19 CONUS bases and one overseas (Puerto Rico)

## **Organization**

In early 1950, SAC's three numbered air forces differed significantly: The Eighth was primarily medium and heavy bombers, the Fifteenth concentrated on medium bombers, and the Second was devoted almost exclusively to reconnaissance activities. Expansion and the integration of B-36s and B-50s into the command created the need for a more balanced organization.

Geographic factors also prompted the need for reorganization. Headquarters Second Air Force, located in Louisiana, controlled units at Fairfield-

Suisun Air Force Base, California, while Headquarters Fifteenth Air Force, located in California, controlled units at MacDill Air Force Base, Florida.

On 1 April, SAC forces were realigned: Each numbered air force was assigned both bomber and reconnaissance aircraft and was assigned units and bases in rather specific geographical regions of the United States—the Second in the Eastern part, the Eighth in the Central region, and the Fifteenth in the Western area.

## Operations

*Korean War.* The invasion of South Korea by North Korea on 25 June brought part of the SAC force into combat for the first time. On 3 July, General Hoyt S. Vandenberg, USAF Chief of Staff, ordered the 22d and 92d Bomb Groups to deploy their B-29s to the Far East to carry out conventional bombing operations north of the 38th parallel. The 22d went to Kadena Air Base, Okinawa, and the 92d deployed to Yokota Air Base, Japan. Upon arrival at these bases, the two groups joined the 19th Bomb Group, another B-29 unit that was assigned to the Far East Air Forces (FEAF), to form the FEAF Bomber Command (Provisional). Organized on 8 July 1950 by Lieutenant General George E. Stratemeyer, FEAF Commander, the Bomber Command was manned largely by SAC personnel. Its first commander was Major General Emmett "Rosie" O'Donnell, Jr., who was temporarily pulled out of his



A modified YRF-84F fighter approaches its "mother" RB-36D for an in-flight "landing." The concept permitted B-36s to carry a limited fighter escort on long-range missions. Note the twin turbojet pods under the B-36 wings.





**B-29s enroute to targets in North Korea in 1950. All "strategic" targets in North Korea were destroyed early in the war that began in June 1950. Subsequently, the B-29s were used to bomb rail lines and "tactical" targets during the war.**

job as commander of the Fifteenth Air Force to direct the bombing effort in Korea. SAC's 31st Strategic Reconnaissance Squadron (RB-29s) was on temporary duty at Kadena when the Korean conflict began. It was also attached to the FEAF Bomber Command.

FEAF Bomber Command's first strike was on 13 July, when fifty B-29s of the 19th, 22d, and 92d Bomb Groups hit Wonsan, an important North Korean port.

Three B-29 groups soon proved to be insufficient to carry out strategic bombing and provide the more immediate tactical support to ground troops. In early August, General Douglas MacArthur, Supreme Commander Allied Powers, accepted a Joint Chiefs of Staff offer of two more SAC B-29 groups, the 98th and 307th. The 98th flew its first combat mission from Yokota on 7 August, five days after leaving Fairchild Air Force Base, Washington; and the 307th launched its first strike from Kadena on 8 August, one week after leaving MacDill Air Force Base, Florida.

By late September, the strategic bombardment offensive was finished. The FEAF Bomber Command had destroyed all significant strategic targets and enemy airfields in North Korea, and General MacArthur allowed the 22d and 92d Bomb Groups to return home. The 98th and 307th remained in the Far East under the operational control of FEAF.

Effective 16 November, the 91st Strategic Reconnaissance Squadron moved without personnel and equipment from Barksdale Air Force Base, Louisiana, to Yokota Air Base, Japan. The 91st absorbed personnel and aircraft of the 31st Strategic Reconnaissance Squadron, which returned to Travis Air Force Base, California.

*27th Fighter Wing in Korean War, first F-84E.* On 8 November, the 27th Fighter-Escort Wing was directed to deploy to the Far East. Movement of the 27th's 75 F-84Es (the first F-84E was delivered in early 1950) was accomplished by aircraft carriers. It took approximately two weeks to make the

trip from San Diego Naval Air Station, California, to Yokosuka, Japan. Upon arrival in Japan, Colonel Ashley B. Packard, the wing commander, established a rear echelon at Itazuke and took his fighters to Taegu Air Field in South Korea. The first F-84 mission was launched from Taegu on 6 December. The F-84s were used primarily for reconnaissance and close support missions. The 27th was still in the Far East at the end of the year.

*Fox Able Three and the second Mackay Trophy.* In September and October, the 27th Fighter-Escort Wing flew 180 F-84E fighters from Bergstrom Air Force Base, Texas, to Furstenfeldbruck, Germany. Nicknamed Fox Able Three, this gigantic ferry mission was divided into two almost equal flights. The first contingent of 90 aircraft left Bergstrom on 15 September. One aircraft aborted the flight before the first leg was completed, but the other 89 fighters continued the mission, stopping five times en route for fuel. On 18 September, 84 fighters landed at Furstenfeldbruck, having covered approximately 5,858 miles in 16 hours and three minutes, actual flying time. The other five fighters, held up for mechanical troubles at Keflavik, Iceland, landed in Germany on 19 September.

Airlifted back to Bergstrom by Military Air Transport Service aircraft, the 27th's crews began getting ready for the second phase of Fox Able Three. On 15 October, 92 F-84s took off from Bergstrom, following the same route as the first flight. Bad weather hampered this phase of the flight, and it was not until 28 October that 91 fighters (one aircraft had trouble on the first leg and landed at Memphis, Tennessee) finally landed in Germany. Colonel Cy Wilson, the 27th commander, directed the two flights as task force commander, flying in the lead aircraft.

For this flight, the 27th Wing received the Mackay Trophy for 1950. General Hoyt S. Vandenberg, USAF Chief of Staff, made the presentation to Colonel Raymond F. Rudell, the wing commander, at Bergstrom on 11 December 1951.

*First KB-29P.* On 1 September, the 97th Air Refueling Squadron, Biggs Air Force Base, Texas, received the first KB-29P tanker (serial number 44-86427). Prior to delivery of this aircraft, all SAC tankers were KB-29Ms, equipped with British-developed hose refueling equipment. The British system involved trailing a hose from the tanker to the receiver and transferring fuel by means of gravity. In the flying boom system, as developed by the Boeing Airplane Company, a telescopic pipe was lowered from the tanker, connected to a socket in the receiver aircraft, and the fuel transfer was made with the aid of a pump.

*First RB-45.* On 26 August, SAC's first RB-45, a "C" model, four-engine jet reconnaissance aircraft was delivered to the 91st Strategic Reconnaissance Wing at Barksdale Air Force Base, Louisiana.

# 1951

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## Resources

<i>Personnel</i>	144,525 (19,747 officers, 113,224 airmen, 11,554 civilians)
<i>Tactical Aircraft</i>	1,186 (340 B-29, 219 B-50, 98 B-36, 12 B-47, 187 KB-29, 21 KC-97, 38 B/RB-45, 65 RB-36, 40 RB-50, 30 RB-29, 4 C-82, 36 C-124, and 96 F-84)
<i>Tactical Units</i>	Three Heavy Bomb Wings (30 UE), two with B-36s and one in process of converting from B-29s to B-36s 19 Medium Bomb Wings (45 UE), 12 with or equipping with B-29s (including two TDY with FEAF), four with B-50s, one with both B-29s and B-50s, one with B-47s and one converting from B-29s to B-47s Two Heavy Reconnaissance Wings (30 UE) with RB-36s Four Medium Reconnaissance Wings, one (45 UE) with RB-50s, RB-29s, and C-82s, one (45 UE) with B/RB-45s, and two (36 UE) with or equipping with RB-29s One RB-29 Reconnaissance Squadron (12 UE) TDY with FEAF Three Fighter Escort Wings (75 UE) being equipped with F-84Gs 16 Medium Air Refueling Squadrons (13 20 UE and three 12 UE), ten with KB-29s, two partially equipped with KC-97s, and four without aircraft assigned Three Strategic Support Squadrons (12 UE) with C-124s <i>Active Bases</i> 22 in CONUS and 11 overseas (North Africa, Puerto Rico, and United Kingdom)

## Organization

In January, Headquarters USAF approved General LeMay's proposal to reorganize SAC's combat forces at base level. Prior to this reorganization, each combat wing consisted of a wing headquarters, a combat group of tactical squadrons, a maintenance and supply group, an air base group (air base groups had replaced airdrome groups in 1948), and a medical group. This standard structure existed in most combat wings, including those on both single and double-wing bases. On two-wing bases (these were becoming more

prevalent with the tremendous expansion brought about by the Korean conflict) the senior wing commander exercised control over the junior wing commander.

Under the new system which was effected in February, each wing was reorganized to consist of a wing headquarters; a combat group of tactical squadrons and, where applicable, air refueling and aviation squadrons; three maintenance squadrons; and an air base group of housekeeping squadrons, a supply squadron, and a medical squadron. Medical and maintenance and supply groups were discontinued. The combat group headquarters was not discontinued at this time but continued to exist in name only. The wing commander served as the combat group commander. Gradually, the term "group" was falling into disuse and the term "wing" was becoming more popular.

*Air divisions assigned.* In conjunction with this reorganization, SAC received authority from Headquarters USAF to organize air division headquarters on double-wing bases and to operate only one air base group on these installations. Composed of approximately 17 people, representing the functions of command, operations, materiel, and administration, the air division headquarters served as an intermediate echelon of command between the combat wings and the numbered air force headquarters. The air division commander exercised direct control over the two wing commanders and the air base group commander. The first five air divisions were organized on 10 February at the indicated bases: 4th, Barksdale; 6th, MacDill; 12th, March; 14th, Travis; and 47th, Walker.

*5th Air Division established in French Morocco.* Effective 14 January, Headquarters 5th Air Division was activated at Offutt Air Force Base, Nebraska, with Major General Archie J. Old, Jr., being named commander. General Old began forming a new staff and making preparations to move to French Morocco in June. Instead of going directly to French Morocco as planned, General Old and his staff were sent to England in late April to open Headquarters 7th Air Division, the staff of which had been lost in a plane crash.

In late May, with a new 7th Air Division commander in place and another staff being formed, General Old and his staff moved on to Rabat, French Morocco, where Headquarters 5th Air Division was opened on 14 June. The primary mission of the new air division headquarters was to conclude negotiations for use of bases in French Morocco, to monitor construction of these facilities, and to supervise training of SAC units at these bases.

*7th Air Division established in England.* After the outbreak of hostilities in Korea, the U.S. and Great Britain decided jointly to build a number of bases in England to accommodate USAF aircraft. Pending completion of these bases, other airfields were earmarked for use by SAC. These included several bases that had been supporting SAC rotational units since 1948. In early 1951, Headquarters USAF approved General LeMay's proposal to establish an air division headquarters in England to monitor the base development program

and to supervise SAC units rotating there. Effective 20 March, Headquarters 7th Air Division was activated at South Ruislip, London, England. On the same day, at Headquarters SAC, a briefing was held for Brigadier General Paul T. Cullen, who had been selected to command the new air division.

General Cullen and about 50 members of his new staff left for England on 23 March, but they were lost en route when their C-124 crashed somewhere in the Atlantic. On 26 April, Major General Archie J. Old, Jr. assumed temporary command of the 7th Air Division and opened the new headquarters. General Old remained in this position until 24 May, at which time Major General John P. McConnell assumed command and began forming a new staff. General Old and his people moved on to French Morocco.

## Operations

*Korean War.* Throughout 1951, the 98th and 307th Bomb Wings remained in the Far East under the operational control of the FEAF Bomber Command. Their B-29s were engaged primarily in attacking bridges, marshalling yards, supply and troop camps, and various other targets. The 91st Strategic Reconnaissance Squadron also remained in the Far East and supported the FEAF Bomber Command effort with photographic and surveillance missions. In June, the 27th Fighter-Escort Wing began training its replacements from other major air commands and by the end of August it had returned to Bergstrom, leaving its F-84Es in the Far East. Upon returning to Bergstrom, the 27th began making preparations to receive the F-84G Thunderjet fighters (first aircraft delivered on 23 September), which were equipped for inflight refueling. No additional SAC fighter wings were called upon to serve in Korea.

*First B-47.* Committed to production in 1949, the B-47 medium bomber first made its appearance in the 306th Bomb Wing on 23 October. On that day, Colonel Michael N. W. McCoy, Wing Commander, flew the first operational B-47 (serial number 50-008) from the Boeing Airplane Company plant at Wichita, Kansas, to MacDill Air Force Base, Florida. On 19 November, in a ceremony at MacDill, this B-47 was named "The Real McCoy." The B-47 was a revolutionary aircraft. It was powered by six jet engines, strut-mounted under the wings, and was categorized as a 600-mph bomber. The authorized complement was 45 for each wing.

*First KC-97.* The 306th Air Refueling Squadron, MacDill Air Force Base, Florida, was the first unit to begin equipping with the KC-97 tanker. Its first aircraft, a KC-97E, was delivered on 14 July. Outfitted with a flying boom and loaded with fuel tanks, the four-engine, propeller-driven KC-97 could fly fast enough to match the minimum speed of the B-47. It transformed the B-47 into an intercontinental bomber. Each KC-97 squadron was authorized 20 aircraft. Serial number of first KC-97 was 51-183.

*Rotational training.* Seven medium bombardment groups, two strategic reconnaissance groups, and selected squadrons deployed to overseas locations, with most of the units going to the United Kingdom. However, rotations were also made to Japan, Guam, and Tripoli.



*First B-36 flight to England.* On 16 January, the first B-36s arrived in England. Six B-36Ds of the 7th Bomb Wing, Carswell Air Force Base, Texas, landed at Lakenheath RAF Station, England, having staged through Limestone Air Force Base, Maine. The flight returned to Carswell on 20 January.

*First B-36 flight to French Morocco.* On 3 December 1951, the first B-36s arrived in French Morocco. Six B-36s of the 11th Bomb Wing landed at Sidi Slimane, French Morocco, having flown nonstop from Carswell Air Force Base, Texas. The flight returned on 6 December.

*The Daedalian Trophy.* For its flying safety record in 1951, the Strategic Air Command received the Daedalian Trophy. First awarded for calendar year 1950, this trophy was established by the Order of the Daedalians, an organization of World War I pilots. It was administered by Headquarters USAF and awarded to the major air command with the lowest aircraft accident rate.

### **Bombing Competition**

*Third competition.* With abatement of the threat of World War II developing out of the Korean conflict, the bombing competition was resumed and expanded. To stress the importance of celestial navigation and to enable reconnaissance wings to compete, navigation was included as a separate phase of the meet. MacDill Air Force Base, Florida, served as the competition headquarters as well as the staging base for medium aircraft, while Carswell Air Force Base, Texas, was the staging base for heavy aircraft. Held from 13 through 18 August, the third meet was attended by 45 SAC crews representing 12 bomb wings and three reconnaissance wings and flying B/RB-36, B/RB-29, and B-50 aircraft.

Two Royal Air Force crews using standard B-29s also participated. Bombing requirements included three visual releases and four radar runs, and the navigation phase included three night celestial navigation legs.

*Fairchild Trophy awarded.* In addition to numerous trophies for separate fields of bombing and navigation, the Fairchild Trophy was presented for the first time to the outstanding bomb unit in the combined fields of navigation and bombing. Named in honor of General Muir S. Fairchild, a former USAF vice chief of staff, this trophy bore the inscription: "In honor of General Muir S. Fairchild and to promote national security, this trophy is presented to the Strategic Air Command by the Hughes Aircraft Company." The first recipient of this trophy was the 97th Bomb Wing, a B-50 unit of the Eighth Air Force.



# 1952

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## Resources

<i>Personnel</i>	166,021 (20,282 officers, 134,072 airmen, 11,667 civilians)
<i>Tactical Aircraft</i>	1,638 (154 B-36, 114 RB-36, 62 B-47, 224 B-50, 39 RB-50, 230 F-84, 417 B-29, 18 RB-29, 36 C-124, 22 RB-45, 4 C-82, 179 KB-29, 139 KC-97)
<i>Tactical Units</i>	<p>Five Heavy Bomb Wings (30 UE), three with B-36s, one being equipped with B-36s, and one without aircraft</p> <p>Four Heavy Strategic Reconnaissance Wings (30 UE), two with RB-36s and two in process of being equipped with RB-36s</p> <p>21 Medium Bomb Wings, eleven (45 UE); five with B-50s, two with B-29s, and four equipping with B-47s, and ten (30 UE), nine with and one equipping with B-29s (includes two TDY with FEAF)</p> <p>Five Medium Strategic Reconnaissance Wings, three (45 UE), one with RB-50s and C-82s, one with RB-45s, and one to be equipped with RB-47s, and two (30 UE) with B/RB-29s</p> <p>One squadron (10 UE) of RB-29s TDY with FEAF</p> <p>Four Strategic Fighter Wings (75 UE) with F-84s</p> <p>Three Strategic Support Squadrons (12 UE) with C-124s</p> <p>19 Medium Air Refueling Squadrons (20 UE), ten with KB-29s, six with KC-97s, and three in process of equipping with KC-97s</p>
<i>Active Bases</i>	26 in CONUS and 10 overseas (Puerto Rico, North Africa, and United Kingdom)

## Organization

*Combat groups inactivated.* Effective 16 June, all bombardment, fighter, and reconnaissance groups were inactivated. Simultaneously, the combat squadrons were assigned to the wings. For all practical purposes, the combat groups had ceased to exist in 1951 when the wings were reorganized and the group headquarters were left unmanned.

*Medical groups activated.* Effective 14 February, medical squadrons were redesignated medical groups and assigned to wings.

*SAC insignia approved.* On 4 January, Headquarters USAF approved an insignia for the Strategic Air Command. The design for the insignia evolved out of a contest conducted in late 1951. With a \$100 U.S. Defense Bond as the prize, the contest drew entries from 60 military and civilian personnel scattered throughout the command. The judges, Generals LeMay, Power, and Kissner, selected the design submitted by Staff Sergeant R. T. Barnes, who was assigned to the 92d Bomb Wing, Fairchild Air Force Base, Washington. The significance of the insignia:

The blue sky is representative of the Air Force operations. The arm and armor is a symbol of strength, power and loyalty and represents the science and art of employing far-reaching advantages in securing the objectives of war. The olive branch, a symbol of peace, and the lightning flashes, symbols of speed and power, are qualities underlying the mission of the Strategic Air Command.

## Operations

*Korean War.* B-29s of the 98th and 307th Bomb Wings and RB-29s of the 91st Strategic Reconnaissance Squadron continued to support the UN efforts in Korea.

*RB-45 flight Alaska to Japan and third Mackay Trophy.* On 29 July, a 91st Strategic Reconnaissance Wing RB-45C (serial number 48-042), commanded by Major Louis H. Carrington, made the first nonstop, transpacific flight from Elmendorf Air Force Base, Alaska, to Yokota Air Base, Japan. This flight, which was made possible by two KB-29 inflight refuelings, earned Major Carrington and his two-man crew the Mackay Trophy for 1952.

*Fox Peter One and Fox Peter Two.* The use of inflight refueling as a means of speeding up mass flights of fighters was tested during two significant deployments to Japan.

In early July, Colonel David C. Schilling led 58 F-84Gs of the 31st Fighter-Escort Wing from Turner Air Force Base, Georgia, to Misawa and Chitose Air Bases, Japan. This flight, nicknamed Fox Peter One, was the first mass fighter deployment to be supported by inflight refueling. KB-29 tankers of the 2d and 91st Air Refueling Squadrons refueled the fighters on the first leg of the flight from Turner to Travis Air Force Base, California. The second refueling, conducted by tankers of the 2d, 91st, and 93d Air Refueling Squadrons, was carried out on the Travis to Hawaii leg of the flight. From Hickam Air Force Base, Hawaii, the fighters island-hopped to Japan, with en route stops at Midway, Wake, Eniwetok, Guam, and Iwo Jima.

It took approximately ten days to complete that portion of the flight from California to Japan. In late 1950, it had taken over two weeks to move the 27th Wing's F-84Es by aircraft carriers from California to Japan, and it took several more days to uncrate the fighters and get them ready for combat. For this 10,919-mile flight, the 31st Wing was awarded the Air Force Outstanding Unit Award in early 1954. The 31st was the first unit to receive this USAF award. The 27th Fighter-Escort Wing was selected to replace the 31st Wing

in Japan under the 90-day rotational training program. Nicknamed Fox Peter Two, this deployment involved 75 F-84Gs under the command of Colonel Donal J. M. Blakeslee. The 7,800-mile flight, much shorter than Fox Peter One, began at Bergstrom Air Force Base, Texas, on 3 October and terminated at Misawa Air Base, Japan, on 14 October. En route stops were made at Travis, Hickam, and Midway, and inflight refuelings were accomplished on the Travis to Hickam and the Midway to Misawa legs. Aircraft were grounded one day at Hickam and held over another day at Midway because of bad weather.

*The Daedalian Trophy.* For the second consecutive year, the Strategic Air Command had the lowest aircraft accident rate in USAF. It received the Daedalian Trophy.

### **Bombing Competition**

Held from 13 through 18 October, the fourth Bombing Competition involved ten B-29, five B-50, and four B-36 wings. Medium bombers staged out of Davis-Monthan Air Force Base, Arizona, and the heavy bombers operated out of Walker Air Force Base, New Mexico. The Royal Air Force entered the meet with four crews, two flying Washington (B-29) medium bombers and two flying Lincoln heavy bombers. Ground rules were altered somewhat for this meet. Each SAC wing sent only two crews instead of three as in previous years. Eighth Air Force's 97th Bomb Wing and Fifteenth's 93d Bomb Wing, both flying B-50Ds, tied for the Fairchild Trophy, and Major General Thomas S. Power, Vice Commander of SAC, flipped a coin to decide which would gain possession of the trophy for the first half of the ensuing year. The 93d won this privilege.

### **Reconnaissance Competition**

Planned as an annual event, the initial SAC Reconnaissance, Photo, and Navigation Competition was held between 23 October and 1 November. Twelve crews representing four wings, two RB-36, one RB-50, and one RB-45, participated. The RB-45s and RB-50s staged out of Lockbourne Air Force Base, Ohio, while the RB-36s flew from Rapid City Air Force Base, South Dakota. The 28th Strategic Reconnaissance Wing, an RB-36 unit of the Eighth Air Force, had the highest score in the combined areas of photo-reconnaissance and navigation and won the P. T. Cullen Award. This impressive sterling silver trophy was named in honor of Brigadier General Paul T. Cullen. Prior to his death in a C-124 crash on 23 March 1951, General Cullen had been one of the leading photo-reconnaissance authorities in the United States.

## Resources

<i>Personnel</i>	170,982 (19,944 officers, 138,782 airmen, 12,256 civilians)
<i>Tactical Aircraft</i>	1,830 (185 B-36, 137 RB-36, 329 B-47, 138 B-50, 38 RB-50, 235 F-84, 110 B-29, 8 RB-29, 49 C-124, 143 KB-29, 359 KC-97, 88 YRB-47, 11 RB-47)
<i>Tactical Units</i>	<p>Six Heavy Bomb Wings (30 UE) with B-36s</p> <p>Four Heavy Strategic Reconnaissance Wings (30 UE) with RB-36s</p> <p>22 Medium Bomb Wings, 17 45 UE, seven with and six in process of equipping with B-47s, three equipped with B-50s, and one with B-29s, and five 30 UE with B-29s (includes two TDY with FEAF)</p> <p>Five Medium Strategic Reconnaissance Wings, four 45 UE, one equipped with RB-50s, two partially equipped with YRB-47s, and one partially equipped with RB-47s, and one (30 UE) partially equipped with RB-29s</p> <p>One RB-29 Strategic Reconnaissance Squadron (10 UE) TDY with FEAF</p> <p>Six Strategic Fighter Wings (75 UE), five with F-84s and one with no aircraft</p> <p>28 Medium Air Refueling Squadrons (20 UE), 20 equipped or equipping with KC-97s and eight equipped or equipping with KB-29s</p> <p>Four Strategic Support Squadrons (12 UE) with C-124s</p>
<i>Active Bases</i>	29 CONUS bases and 10 overseas (North Africa, Puerto Rico, and United Kingdom)

## Organization

Although SAC continued to grow throughout 1953, this growth was tempered somewhat by the USAF wing program being reduced slightly from a goal of 143 to 120 combat wings.

*Strategic fighter wings.* Effective 20 January, SAC's four fighter-escort wings (12th, 27th, 31st, and 508th) were redesignated strategic fighter wings in recognition of their developing an atomic bombing capability. Two additional F-84 strategic fighter wings were activated in 1953.

*Korean War.* The 98th and 307th Bomb Wings and the 91st Strategic Reconnaissance Squadron continued to serve in a combat capacity with the FEAF Bomber Command until the fighting ended on 27 July. With exception of FEAF's own 19th Bomb Wing, the FEAF Bomber Command was composed entirely of SAC units and was commanded by SAC personnel. Through the three-year conflict, the Bomber Command's B-29s flew 21,328 effective combat sorties, including 1,995 reconnaissance sorties and 797 psychological warfare sorties. The B-29s dropped 167,100 tons of bombs on various targets ranging from front line enemy troop emplacements to airfields on the banks of the Yalu River. The 98th and 307th Bomb Wings and the 91st Strategic Reconnaissance Squadron were included in the South Korean Presidential Unit Citation that was bestowed upon the FEAF Bomber Command, Provisional. These units remained in the Far East throughout 1953.

## Operations

*Operation Longstride and fourth Mackay Trophy.* The deployment of F-84Gs across the Atlantic became equally important to SAC operations, particularly since the F-84 had been converted to a fighter-bomber with a nuclear bombing capability. Nicknamed Operation Longstride, the first mass nonstop fighter flight over the Atlantic was a dual mission conducted by the 31st and 508th Strategic Fighter Wings, located at Turner Air Force Base, Georgia. These wings were assigned to the 40th Air Division.

The first phase of Operation Longstride began at 0743, ZULU time, on 20 August, when Colonel David C. Schilling, 31st Wing Commander, led a flight of nine F-84s off the runway at Turner Air Force Base. One Thunderjet spare accompanied the flight as far as Savannah, Georgia, and then returned home, while the main flight of eight continued on its way to North Africa. Three inflight refuelings by KC-97 aircraft were required to get the fighters across the Atlantic.

Operating out of Kindley Air Force Base, Bermuda, KC-97s of the 305th Air Refueling Squadron furnished the first two refuelings, while KC-97s of the 26th Air Refueling Squadron positioned at Lajes Air Force Base, Azores, provided the third refueling. The formation of eight landed at Nouasseur Air Base, French Morocco, approximately 10 hours and 20 minutes after leaving Turner. After spending a few days at Lakenheath RAF Station, England, the flight returned to Turner on 2 September.

Within a few minutes after Colonel Schilling's flight was on its way to North Africa, the second phase of Operation Longstride began. This flight of 20 Thunderjets was led by Colonel Thayer S. Olds, 40th Air Division Commander, and Colonel Cy Wilson, 508th Wing Commander. Using the North Atlantic route, the 508th's fighters were also refueled three times, once over Boston by KB-29 tankers of the 100th Air Refueling Squadron, once near Labrador by KC-97s of the 26th Air Refueling Squadron, and once near Iceland by KC-97s of the 306th Air Refueling Squadron, which was TDY to England. The main flight of 17 landed at Lakenheath RAF Station, England,





A trio of Washingtons in flight with RAF markings during the early 1950s. Britain borrowed 88 B-29 and B-29A aircraft from USAF storage to provide a strategic strike capability pending arrival of jet-propelled bombers. The first aircraft were flown to the United Kingdom in March 1950. A total of eight RAF bomber squadrons plus a special signals unit, No. 192 Squadron, flew the Washingtons. By the end of 1954, most had been retired from the bomber role, although a few continued in RAF service until early 1958. (Ministry of Defence photo)

approximately 11 hours and 20 minutes after leaving Turner. Three Thunder-jets were held over one day at Keflavik before completing the flight. The flight returned to Turner on 12 September.

The 40th Air Division received the Mackay Trophy for Operation Longstride.

*First B-47 wing deployment.* From 22 January through 20 February, the 306th Bomb Wing, the first B-47 wing, was subjected to an exhaustive exercise, Sky Try, in which the B-47 was tested under simulated combat conditions.

Shortly after completion of Sky Try, SAC decided the 306th was ready for a 90-day rotational training mission to England. B-29 and B-50 wings had been rotating there since 1948. The 306th's deployment originated at MacDill Air Force Base, Florida, and involved equal flights of 15 B-47s on 3, 4, and 5 June. The B-47s staged through Limestone Air Force Base, Maine, where they remained overnight before going on the next day. They landed at Fairford RAF Station on the 4th, 5th, and 6th of June. The B-47 record of five hours and 38 minutes over the 3,120 mile route from Limestone to Fairford, established by Colonel Michael N. W. McCoy, 306th Wing Commander, on a 6 April indoctrination flight was broken nine times before the deployment was over. The best time was recorded by the last B-47 to land on 6 June. It completed the trip in five hours and 22 minutes, averaging about 575 miles per hour. The 306th Air Refueling Squadron's KC-97s, crammed with support personnel and equipment, deployed on the same dates as the B-47s. They stopped overnight at Ernest Harmon Air Force Base, Newfoundland, and then flew on to Mildenhall RAF Station.

When the 90-day rotation was over, the 305th Bomb Wing, SAC's second B-47 wing, was ready to begin rotational training. As the 305th arrived in England—the bombers went to Brize Norton and the tankers to Mildenhall—



the 306th began returning home. The return flight was nonstop, with the 306th Air Refueling Squadron's tankers providing one inflight refueling for the bombers shortly after leaving England. By the time the 305th's tour was over the 22d Wing had completed the transition to B-47s and was ready to rotate. The policy of maintaining at least one B-47 wing in England at all times would continue until early 1958.

*RB-45s to FEAF.* On 1 December, SAC's last four RB-45s, which had been assigned to a detachment of the 91st Strategic Reconnaissance Wing at Yokota Air Base, Japan, were transferred to FEAF.

*Operation Big Stick.* In August and September, the 92d Bomb Wing made the first mass B-36 flight to the Far East, visiting bases in Japan, Okinawa, and Guam. Nicknamed Operation Big Stick this 30-day exercise came shortly after the termination of hostilities in Korea and demonstrated the U.S. determination to use every means possible to maintain peace in the Far East.

### **Bombing Competition**

Seventeen bomb wings sent two crews each to the Fifth Bombing Competition, which was held between 25 and 31 October. For the first time in the competition's history spare aircraft were prohibited. This placed emphasis upon high quality maintenance. The B-47 made its first appearance in the competition, with seven participating wings staging out of Davis-Monthan Air Force Base, Arizona. Walker Air Force Base, New Mexico, was the staging base for ten wings, four B-36, four B-50, and two B-29.

Maintenance was extremely good as there was only one ground abort. Results of the competition for the Fairchild Trophy were extremely close, with the winner not being decided until the last mission was flown. The 92d Bomb Wing, a B-36 unit of the Fifteenth Air Force, won the trophy with 1,687 points, edging out its nearest competitor, a B-50D wing, by 20 points. The B-50D wings fared extremely well in the meet, with the other three units taking third, fourth, and fifth places. The B-47 fell below expectations in several aspects, particularly navigation, and of the seven wings competing, one placed ninth, one tenth, and the other five brought up the rear.

### **Reconnaissance Competition**

Ellsworth Air Force Base, South Dakota, was the staging base for this second competition, which was held from 18 through 27 October. The fourteen competing crews represented seven wings (four RB-36, one RB-50, one RB-29, and one YRB-47). The 5th Strategic Reconnaissance Wing, an RB-36 unit of the Fifteenth Air Force, won the P. T. Cullen Award.

## Resources

<i>Personnel</i>	189,106 (23,447 officers, 151,466 airmen, 14,193 civilians)
<i>Tactical Aircraft</i>	2,640 (209 B-36, 133 RB-36, 795 B-47, 78 B-50, 12 RB-50, 411 F-84, 54 C-124, 91 KB-29, 592 KC-97, 265 YRB/RB-47)
<i>Tactical Units</i>	<p>Six Heavy Bomb Wings (30 UE) with B-36s</p> <p>Four Heavy Strategic Reconnaissance Wings (30 UE) with RB-36s</p> <p>24 Medium Bomb Wings (45 UE), 17 with B-47s, two with YRB-47s, two with B/RB-50s, and three equipping with B-47s</p> <p>Four Medium Reconnaissance Wings (45 UE) with RB-47s</p> <p>Six Strategic Fighter Wings (75 UE), four with F-84Fs, one with F-84Gs, and one converting from F-84Gs to F-84Fs, (the F-84F, a swept-wing fighter, was produced <i>after</i> the F-84G, a straight-wing model)</p> <p>32 Medium Air Refueling Squadrons (20 UE), 28 with KC-97s and four with KB-29s</p> <p>Four Strategic Support Squadrons (12 UE) with C-124s</p>
<i>Active Bases</i>	30 in the CONUS and 11 overseas (Puerto Rico, North Africa, and United Kingdom)

## Organization

*Activation of 3d Air Division on Guam.* In early 1954, Headquarters USAF directed that the FEAF Bomber Command be discontinued and that its three B-29 wings be returned to the United States and equipped with B-47s. On 18 June, concurrent with the inactivation of the FEAF Bomber Command at Yokota Air Base, Japan, Headquarters 3d Air Division was activated at Anderson Air Force Base, Guam, and assigned to SAC. The new division was manned largely with people from the FEAF Bomber Command. Brigadier General Joseph D. Caldara, the last commander of FEAF Bomber Command, became the first 3d Air Division commander. The 3d Air Division's primary responsibility was to control all SAC units operating in the Far East and to

monitor the construction of bases and facilities to support these operations. Throughout 1954, the 3d Air Division operated as a tenant at Anderson, with logistical support being provided by FEAF's 6319th Air Base Wing. It was not until April 1955 that Anderson was transferred from FEAF to SAC.

## Operations

With the acquisition of additional B-47s and KC-97s, SAC operations increased tremendously. Approximately 142,000 air refueling hookups were effected during the year. Operational training flights were conducted throughout the world, with more than 3,400 individual transatlantic and transpacific crossings being made by various types of aircraft.

*Nonstop B-47 Flight to Japan.* On 21 June, Major General Walter C. Sweeney, Jr., Fifteenth Air Force Commander, led a flight of three 22d Bomb Wing B-47s on a nonstop flight from March Air Force Base, California, to Yokota Air Base, Japan, a distance of 6,700 miles in less than fifteen hours. This flight, supported by two inflight refuelings by KC-97s, was the longest point-to-point, nonstop B-47 flight to that date. It marked the first appearance of the B-47 in the Far East.

*Operation Leap Frog and fifth Mackay Trophy.* On 6 and 7 August, two B-47s of the 308th Bomb Wing flew a 10,000-mile nonstop flight from Hunter Air Force Base, Georgia, to French Morocco and back to Hunter. Each aircraft was refueled four times by KC-97s. One made the flight in 24 hours and four minutes, while the other took 25 hours and 23 minutes.

This flight was conducted in conjunction with Operation Leap Frog, in which the two B-47 wings of the 38th Air Division tested a new concept of intercontinental bombing operations. In this test, the B-47s took off from Hunter, flew a simulated bombing mission, and then recovered at a base in North Africa. Prior to this time, SAC's concept of war operations was based on deployment of its bombers to forward bases where they would land, refuel, and subsequently take off for bombing. The Mackay Trophy was awarded to the 308th Bomb Wing for this flight.

*B-47 record flight.* On 17 November, Colonel David A. Burchinal, Commander of the 43d Bomb Wing, took off from Sidi Slimane, French Morocco, in a B-47 and directed his course toward Fairford RAF Station, England, where his wing was on 90-day rotational training. Bad weather prevented him from landing at Fairford, and he returned to French Morocco only to find bad weather at Sidi Slimane. With the assistance of nine inflight refuelings, Colonel Burchinal kept flying until the weather finally cleared at Fairford on 19 November. In the meantime, he had established a distance and endurance jet flying record of 21,163 miles in 47 hours and 35 minutes.

*First B-36 wing rotation to Guam.* On 15 and 16 October, the 92d Bomb Wing, A B-36 unit stationed at Fairchild Air Force Base, Washington, deployed to Anderson Air Force Base, Guam, for a 90-day rotational training assignment. This was the first time an entire B-36 wing had been deployed to an overseas base.

*RB-36 Wings Given Bombardment Mission.* Effective 16 June, SAC's four RB-36 equipped heavy strategic reconnaissance wings were given a primary mission of bombing. They retained limited reconnaissance as a secondary mission.

### **Bombing Competition**

The sixth competition was held from 23 through 29 August. Competition ground rules were essentially the same as in 1953, with each wing being represented by two crews. Fifteen B-47 wings staged out of Barksdale Air Force Base, Louisiana, while six B-36 and two B-50 wings staged out of Walker Air Force Base, New Mexico. One RB-36 crew of the 28th Strategic Reconnaissance Wing was allowed to compete on the basis of its outstanding bombing performance in the 1954 SAC Reconnaissance Navigation Competition. The B-36 wings continued to dominate the meet as they finished "one-two-three" in both bombing and navigation. The 11th Wing, an Eighth Air Force B-36 unit, won the Fairchild Trophy. While the B-47 wings showed remarkable improvement in navigation, their bombing was still below that of the B-36 wings. The 305th Bomb Wing made the best showing of any B-47 wing by placing fourth in the Fairchild Trophy competition. The 28th Wing's lone entry tied for first place in crew navigation and placed 11th in crew bombing.

### **Reconnaissance and Navigation Competition**

The 1954 (third) competition was held at Fairchild Air Force Base, Washington, from 9 through 14 August, and included two crews from each participating wing. In addition to the photo and navigation requirements, which were common to all participants, the four RB-36 wings also conducted radar bombing in recognition of their newly-acquired bombing mission. The RB-36 units monopolized the competition by capturing first place in the six events in which they competed against the two RB-47 wings. The 28th Strategic Reconnaissance Wing, the Eighth Air Force's lone entry, won the P. T. Cullen Award for the best combined score in photo and navigation.

# 1955

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## Resources

<i>Personnel</i>	195,997 (26,180 officers, 151,595 airmen, 18,222 civilians)
<i>Tactical Aircraft</i>	3,068 (205 B-36, 133 RB-36, 1,086 B-47, 234 RB-47, 12 RB-50, 18 B-52, 679 KC-97, 82 KB-29, 51 C-124, 568 RF/F-84)
<i>Tactical Units</i>	11 Heavy Bomb Wings, nine (30 UE) with B/RB-36s, and two (45 UE), one equipped and one equipping with B-52s 27 Medium Bombardment Wings (45 UE), 22 with B-47s and five equipping with B-47s Five Medium Reconnaissance Wings (45 UE) with RB-47s 39 Medium Air Refueling Squadrons (20 UE), 33 with KC-97s, two equipping with KC-97s, four with KB-29s Six Strategic Fighter Wings (75 UE) with F-84Fs One Strategic Reconnaissance Wing, Fighter (75 UE), equipping with RF-84Fs and RF-84Ks One Light Strategic Reconnaissance Squadron without aircraft assigned Four Strategic Support Squadrons (12 UE) with C-124s
<i>Active Bases</i>	37 CONUS and 14 oversea bases (in Puerto Rico, North Africa, United Kingdom, and Guam)

## Organization

*Numbered Air Force realignment and move of Eighth Air Force.* By 1955, the New York-New England area was becoming increasingly important to SAC operations. Dow and Loring Air Force Bases, Maine, had been supporting F-84 and B-36 wings, respectively, for some time; Westover Air Force Base, Massachusetts, which became a SAC installation on 1 April, was being groomed to support tankers and bombers; and new B-47/KC-97 bases were being built in Portsmouth, New Hampshire, and Plattsburgh, New York. In line with this expansion, SAC realigned its three numbered air forces and, effective 13 June, moved Headquarters Eighth Air Force from Carswell Air





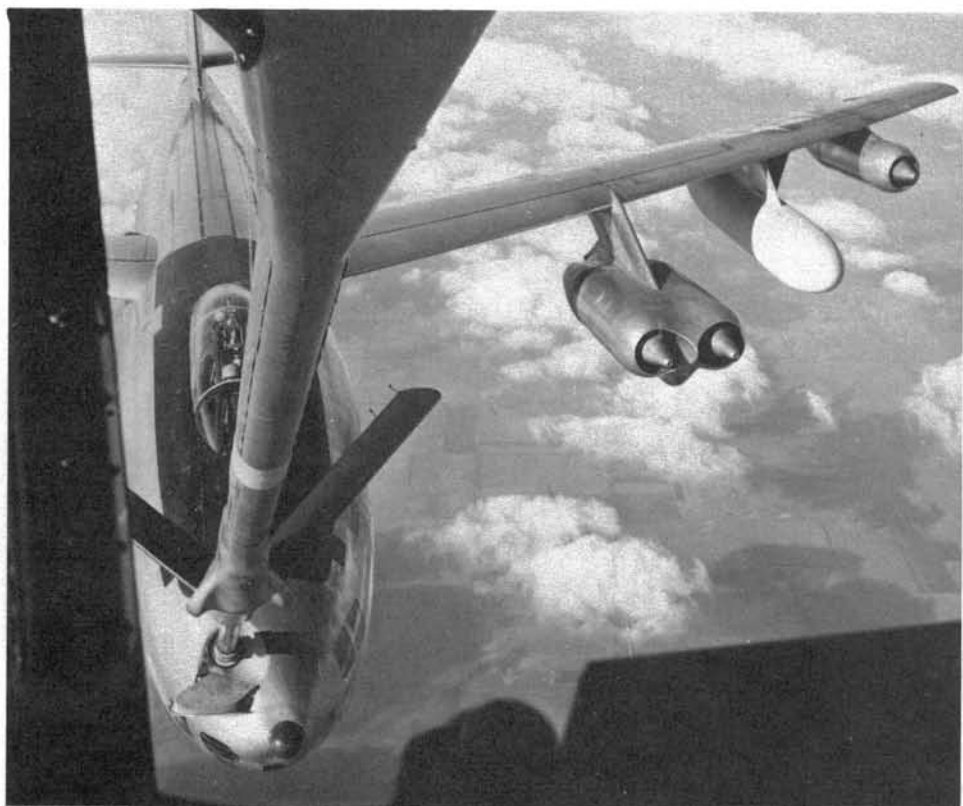
A B-47B at altitude. The sleek lines, high speed, and minimal defensive armament of the Stratojet marked a radical change in strategic bomber design. Note the lack of unit markings; the SAC markings of a shield with a blue field, star-studded, had not yet been introduced. (Boeing photo)

Force Base, Texas, to Westover. Following this realignment, SAC's numbered air forces were generally responsible for units and bases in the following geographical sections of the country: Second—Southeast (including Texas); Eighth—Northeast and Central; Fifteenth—Southwest and West.

*Organization of air refueling wings.* Prior to 1955, the majority of air refueling squadrons were collocated with and assigned to bomber and fighter wings. A few squadrons were physically separated from their parent wings and located on non-SAC bases. In 1955, SAC departed from these practices and organized two air refueling wings, the 4060th at Dow and the 4050th at Westover, and assigned two KC-97 squadrons to each of them. Establishment of these two wings signaled the beginning of a program to concentrate air refueling strength in the Northeast. The buildup would continue well into the 1960s and would provide SAC with increased B-47 deployment mobility over the North Atlantic.

*Redesignation of RB-36 strategic reconnaissance wings.* Effective 1 October, SAC's four heavy strategic reconnaissance wings were redesignated heavy bombardment wings in recognition of the conversion of the RB-36 from a reconnaissance to a bomber aircraft. They retained "latent" reconnaissance capability.





The B-47—like other U.S. strategic bombers—had to be forward based or have multiple in-flight refuelings to reach the Soviet Union. This is a tanker's eye view of a B-47 being refueled at the rate of 600 gallons per minute. (Boeing photo)

## Operations

*Rotational training.* SAC's mobility and flexibility were demonstrated by the rotation of entire combat wings, air refueling squadrons, and smaller units to various overseas bases for periods of time ranging from a few days to three months. Entire B-47 wings and KC-97 air refueling squadrons were periodically rotated to the North African bases of Benguerir and Sidi Slimane. Other B-47 wings, some with and others without air refueling squadrons were rotated to England, using such bases as Lakenheath, Upper Heyford, Fairford, Mildenhall, and Brize Norton. In early May, the 27th Strategic Fighter Wing deployed to Sturgate for a 90-day tour, marking the first time since 1951 that a fighter wing had been deployed to Great Britain.

To support these mass flights of B-47s and F-84s across the Atlantic, KC-97 squadrons were maintained on a rotational basis at such places as Goose Air Base, Labrador, Ernest Harmon Air Force Base, Newfoundland, and Thule Air Base, Greenland. At the same time, B-36 wings were deploying to Nouasseur Air Base, French Morocco; Burtonwood and Upper Heyford RAF Stations in the United Kingdom; and Anderson Air Force Base, Guam. The

Alaskan bases, Elmendorf and Eielson, were also busy supporting KC-97, B-47, and F-84 aircraft.

*First B-52 delivered.* The 93d Bomb Wing, located at Castle Air Force Base, California, was the first wing to be equipped with the B-52 Strato-fortress. On 29 June, Brigadier General William E. Eubank, Jr., the wing commander, flew the first aircraft (a "B" model, serial number 52-8711) from the Boeing factory at Seattle, Washington, to Castle. Powered by eight turbo-jet engines, the B-52B had a gross takeoff weight of around 420,000 pounds and a maximum speed of 650 mph. It could fly above 50,000 feet. While it had an unrefueled range of 6,000 miles (substantially less than later models), its actual range was unlimited since it could be refueled in the air. Most of the B-52Bs produced were assigned to the 93d Bomb Wing during the period from June 1955 to March 1956.

*Last B-50.* On 20 October, the last B-50 ("D" model serial number 49-330) assigned to the 97th Bomb Wing, Biggs Air Force Base, Texas, was phased out of the SAC force.

## Bombing Competition

With the B-50 phase out almost completed, there were only two types of aircraft, B-47s and B-36s, entered in the seventh bombing competition, held from 24 through 30 August. March Air Force Base, California, was the staging base for 23 B-47 wings. The ten B/RB-36 wings (RB-36s were no



More B-47s were produced than any other jet-propelled "strategic" bomber except for its Soviet counterpart, the TU-16 Badger. Some 2000 Badgers were built; almost half that number remain in Soviet service, but all the B-47s are long gone. This was a scene at the Boeing plant in Wichita, Kansas, in 1950.



The B-47 had a tandem landing gear with outriggers extending from the twin engine nacelles. A braking parachute was "popped" to help slow the aircraft for landing. This view shows the first of two XB-47s. (Boeing photo)



The Martin RB-57D provided the Strategic Air Command with a high-altitude, multi-sensor aircraft before the U-2 became available. The -D and later -F reconnaissance variants of the Canberra could easily be identified by their oversize wings and engine nacelles. The Canberra was the only foreign aircraft design to be adopted by the USAF after World War II.

longer classified as reconnaissance aircraft) staged out of Fairchild Air Force Base, Washington. Each wing was again represented by two crews.

The most significant factor in this competition was the tremendous improvement made by B-47s in both bombing and navigation. For the first time, a B-47 unit, Fifteenth Air Force's 320th Bomb Wing, won the Fairchild Trophy.

### **Reconnaissance Competition**

With the conversion of all RB-36s to bombers, the fourth reconnaissance competition became an all RB-47 affair, with five strategic reconnaissance wings sending 15 crews. It was held at Lockbourne Air Force Base, Ohio, from 24 through 30 September. Eighth Air Force's 91st Strategic Reconnaissance Wing won the P. T. Cullen Award.

### **Missiles**

Throughout the early 1950s, the Strategic Air Command became more and more involved in the development of missiles as a means of increasing its long-range striking power. The actual development and testing of missiles remained in the hands of contractors and the Air Research and Development Command, but SAC maintained close liaison with the various programs by presenting its requirements, offering technical assistance, and attending various meetings, conferences, and field tests.

By 1955, the Snark, a subsonic intercontinental missile (ICM), and the Rascal, an air-to-ground missile designed to be launched from a bomber, had undergone tests.

After President Dwight D. Eisenhower had placed the highest national priority on the development of missiles, Headquarters USAF accelerated the development of the Snark as well as the Navaho, another intercontinental missile, and the Atlas, an intercontinental ballistic missile (ICBM). Furthermore, in November, Headquarters USAF directed SAC to work closely with the Air Research and Development Command in establishing an "initial operational capability" for ICBMs, after which they would be turned over to SAC for operational use.

# 1956

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## Resources

<i>Personnel</i>	217,279 (27,871 officers, 169,170 airmen, 20,238 civilians)
<i>Tactical Aircraft</i>	3,188 (247 B/RB-36, 97 B-52, 254 RB-47, 1,306 B-47, 16 RB-57, 51 C-124, 750 KC-97, 74 KB-29, 366 F-84, 57 RF-84F)
<i>Tactical Units</i>	11 Heavy Bomb Wings, seven (30 UE) equipped with B/RB-36s, one (45 UE) with B-52s, and three (45 UE) in process of equipping with B-52s 28 Medium Bomb Wings (45 UE), 27 with B-47s and one, the last wing to be equipped with B-47s, in the final stages of equipping Five Medium Strategic Reconnaissance Wings (45 UE) with RB-47s One Light Strategic Reconnaissance Wing being equipped with RB-57s Five Strategic Fighter Wings (75 UE) with F-84Fs One Strategic Reconnaissance Fighter Wing (75 UE) being equipped with RF-84s 40 Medium Air Refueling Squadrons (20 UE), 36 with KC-97s and four with KB-29s Four Strategic Support Squadrons (12 UE) with C-124s
<i>Active Bases</i>	36 in the CONUS and 19 overseas (in Puerto Rico, North Africa, United Kingdom, and Guam)

## Operations

*B-52 conversion program.* By the end of March, the 93d Bomb Wing, located at Castle Air Force Base, California, was fully equipped with 30 B-52s (it was later reorganized to operate 45 B-52s). Shortly thereafter, the 93d's 4017th Combat Crew Training Squadron, which had been activated on 8 January 1955, began training crews to man additional B-52 wings. The 42d Bomb Wing, Loring Air Force Base, Maine, was the second wing to be equipped with B-52s, with the first aircraft being delivered in June. The 42d was the first B-36 unit to convert to B-52s as the 93d had been a B-47 outfit prior to conversion. The 99th Wing, Westover Air Force Base, Massachusetts, the third B-52 wing, began receiving aircraft in December.



*The Suez Crisis.* In reacting to the Suez Crisis from mid-November to mid-December, KC-97 tankers were concentrated into tanker task forces at key bases in the northern part of the United States and overseas at Greenland, Newfoundland, and Labrador, on rotational training assignments. The overseas rotational training force consisted of one B-47 wing in England, one B-47 wing in North Africa, and one B-36 wing in Guam.

*Quick Kick B-52 flight.* On 24 and 25 November, in an operation called Quick Kick, four B-52s of the 93d Bomb Wing joined four B-52s of the 42d Bomb Wing for a nonstop flight around the perimeter of North America. The most publicized individual flight was that of a 93d Bomb Wing B-52 piloted by Lieutenant Colonel Marcus L. Hill, Jr. Colonel Hill's flight, which originated at Castle and terminated at Baltimore, Maryland, covered approximately 13,500 nautical miles in 31 hours and 30 minutes. The flight demonstrated both the value and the limitations of the KC-97 tanker. Without the four in-flight refuelings, the flight would have been impossible; but, according to Colonel Hill, flying time could have been reduced by at least three hours by using the KC-135, an all-jet tanker that was being developed by the Boeing Airplane Company.

*Power House and Road Block.* Within a two-week period ending on 11 December, SAC executed the largest and most complex B-47 and KC-97 exercise to date. In two related exercises, called Power House and Road Block, more than 1,000 B-47s and KC-97s flew gigantic simulated combat missions over North America and the Arctic. The KC-97s participating in these exercises were furnished by the strategically positioned tanker forces that had been formed in mid-November.

*Last B-47 delivered.* On 24 October, the last production-line B-47, an "E" model, serial number 53-6244, was delivered to the 40th Bomb Wing, Schilling Air Force Base, Kansas.

*Last KC-97 delivered.* On 16 November, the last production-line KC-97, a "G" model, serial number 53-3816, was delivered to the 98th Air Refueling Squadron, Lincoln Air Force Base, Nebraska.

*First RB-57 delivered.* On 31 May, the first RB-57 (a "D" model, serial number 53-3973), the reconnaissance version of the British-designed B-57 Canberra light bomber, was delivered to the 4080th Strategic Reconnaissance Wing at Turner Air Force Base, Georgia. The 4080th had received a B-57 ("C" model serial number 53-3842) for a trainer on 1 May.

## **Bombing and Reconnaissance Competition**

The competition grew along with SAC, and in 1956, the largest one to date was held with 42 wings participating in a combined bombing, navigation, and reconnaissance meet. It was held from 24 through 30 August, with Lockbourne Air Force Base, Ohio, hosting 27 B-47 and five RB-47 wings and Loring Air Force Base, Maine, serving as the staging base for eight B/RB-36 and two B-52 wings. Each participant sent two crews. For the first time, jet reconnaissance aircraft (RB-47s) competed against bombers in bombing and





The KC-97 was the basic SAC tanker aircraft during the 1950s. From 1951 onward 888 C-97 and KC-97 aircraft were delivered to the USAF. Shown here is KC-97G number 53-3816, the last of the design to be delivered. Note the "chin" radar pod, underwing fuel tanks, B-29 type tail fin, and refueling boom in the stowed position. (Boeing photo)

navigation and, at the same time, competed against each other in the reconnaissance competition, the fifth in this series of meets. The B-36s of Second Air Force's 11th Bomb Wing won the Fairchild Trophy by beating out the B-47s, which had snared the trophy in 1955, and the newly-assigned B-52s that were competing in the event for the first time. Eighth Air Force's 91st Strategic Reconnaissance Wing won the P. T. Cullen Award.

*First competition.* Nicknamed Operation Left Hook, the first and only SAC fighter competition was held from 25 October to 14 November. Five strategic fighter wings competed, with each wing entering 36 F-84s. Although the requirement for all wings was the same, only one wing at a time flew in the competition, which was staged out of Offutt Air Force Base, Nebraska. The top wing in the competition, Second Air Force's 506th Strategic Fighter Wing, won the newly-established Auton Trophy. This trophy was named for Brigadier General Jesse Auton, a former SAC Deputy Director of Operations for fighters, who was killed in a B-25 crash at Offutt on 30 March 1952. Planned as an annual rotational trophy, such as the Fairchild and P. T. Cullen awards, the Auton Trophy was awarded only once because SAC disposed of its fighter wings in 1957.

## Missiles

In March, Headquarters USAF gave SAC and the Air Research and Development Command responsibility for developing an initial operational capability with the Thor and assigned SAC the responsibility for deploying this missile to England and bringing it to a combat ready status after which it would be turned over to the Royal Air Force.

In July, Headquarters SAC announced that it was entering the planning phase of its missile program and that it was primarily interested in the Thor, Navaho, and Snark subsonic intercontinental missiles, and Titan and Atlas

intercontinental ballistic missiles. Other missiles being developed for possible use by SAC included Goose, Rascal, and Quail. Carried aboard a B-47, the Rascal was a supersonic guided missile that was designed to penetrate enemy target defenses from a distance and make its carrier less vulnerable to the enemy defense system.

Through the early 1950s, all branches of service were involved in developing various types of missiles for military use. As these systems evolved through competition, there were changes in strategic concepts and different views on how the systems should be used and which branch of service should control them. On 26 November, Secretary of Defense Wilson issued a memo, which was designed to "improve the effectiveness of our overall military establishment, to avoid unnecessary duplication of activities and functions and to utilize most effectively the funds made available by the people through Congress."

*The Air Force assigned intercontinental ballistic missiles.* While Secretary Wilson treated several areas of responsibility in his directive, he was concerned primarily with clarifying the roles of the Army, Navy, and Air Force in regard to the development and use of various types of missiles. He gave USAF sole responsibility for operational employment of land-based intermediate range ballistic missiles and reconfirmed the earlier assignment to USAF of sole responsibility for operational employment of intercontinental ballistic missiles. Since the missiles being developed in these categories at that time were for strategic bombing purposes, SAC was assured a primary role in USAF's future missile program. At the same time, Secretary Wilson gave the Army responsibility for using land-based surface-to-air defensive missiles and surface-to-surface tactical missiles with ranges less than 200 miles. The Navy was given similar responsibility for ship-based intermediate range ballistic missiles.

# 1957

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## Resources

<i>Personnel</i>	224,014 (29,946 officers, 174,030 airmen, 20,038 civilians)
<i>Tactical Aircraft</i>	2,711 (127 B/RB-36, 243 B-52, 1,285 B-47, 216 RB-47, 24 RB-57, 50 C-124, 742 KC-97, 24 KC-135)
<i>Aircraft Units</i>	11 Heavy Bomb Wings, four (30 UE) with B/RB-36s, five (45 UE) with B-52s, and two (one 45 UE and one 30 UE) equipping with B-52s One Heavy Strategic Wing (15 UE) without aircraft assigned 28 Medium Bomb Wings (45 UE) with B-47s Four Medium Strategic Reconnaissance Wings (45 UE) with RB-47s One Light Strategic Reconnaissance Wing with RB-57s and U-2s 35 Medium Air Refueling Squadrons (20 UE) with KC-97s Five Heavy Air Refueling Squadrons (20 UE), one with and four equipping with KC-135s Four Strategic Support Squadrons (12 UE) with C-124s One Strategic Missile Squadron (ICM-Snark) without missiles
<i>Missile Unit</i>	
<i>Active Bases</i>	38 CONUS and 30 overseas (Puerto Rico, United Kingdom, North Africa, Guam, Spain, Greenland, Newfoundland, and Labrador)

## Organization

*Sixteenth Air Force assigned to SAC.* On 1 July, SAC assumed jurisdiction over the Sixteenth Air Force in Spain. Since its activation on 15 July 1956 at Torrejon Air Base, near Madrid, Headquarters Sixteenth Air Force had operated as a special organization under the direct control of Headquarters USAF. Its primary responsibility had been to monitor the construction of Spanish bases to be used by SAC bombers. In addition to Torrejon, the Six-

teenth controlled three other bases in Spain. Concurrent with its assignment to SAC, the Sixteenth assumed command jurisdiction over the Fifth Air Division and its bases in French Morocco. It was not fully capable of taking over control of SAC operations in North Africa at this time. Second Air Force retained this responsibility throughout 1957.

*First B-47s to Spain.* On 23 and 24 July, the 40th Bomb Wing, which was on 90-day rotation in the United Kingdom, sent 15 B-47s to Zaragoza Air Base, Spain, for a short exercise.

*Acquisition of NEAC Bases.* The United States Air Force's base requirements in Newfoundland, Greenland, and Labrador were intensified in 1950 after the outbreak of the Korean war. The Joint Chiefs of Staff established the Northeast Air Command (NEAC), with headquarters at Pepperrell Air Force Base, Newfoundland, and gave it a twofold responsibility: to defend, in cooperation with ADC, the northeast approaches to the United States and to develop bases and support facilities to support SAC units deploying through or staging out of them. In the gigantic simulated combat mission associated with the Suez crisis in late 1956, four of these bases supported large tanker task forces. The success of the exercise strengthened Headquarters USAF's earlier decision that the bases no longer required close supervision by a major air command in the immediate area. Accordingly, NEAC was discontinued on 1 April, and its resources were reassigned to ADC and SAC. ADC received two bases and SAC received six. SAC, in turn, immediately placed its six bases under the jurisdiction of Eighth Air Force.

*Relocation of headquarters SAC.* In January, Headquarters SAC completed its move into the newly-built Control Center. This nine million dollar facility (subsequent additions raised the value far beyond this initial cost) actually consisted of two interconnected structures: an administration building, consisting of three stories above ground and a basement, and an underground three-story command post. Access from one facility to the other was provided by a tunnel. The underground facility, which was designed to be safe from anything but a direct hit by a high yield nuclear weapon, housed the Control Room and related communications equipment and computers designed to maintain close contact with SAC forces throughout the world. Giant panels of maps and boards were used to depict the exact disposition and operational status of the entire force. Prior to this move, which commenced in December 1956, Headquarters SAC had operated out of several buildings that had housed the Glenn L. Martin bomber plant in World War II.

## **Operations**

*One-Third ground alert.* By 1957, the Soviet Union was showing progress in developing intercontinental ballistic missiles. In order to provide an effective and immediate retaliatory strike force, SAC devised the ground alert concept whereby it would maintain approximately one-third of its aircraft on ground alert, with weapons loaded and crews standing by for immediate takeoff. SAC's combat wings were neither manned nor organized to support this new

concept. In order to determine what was needed to develop and maintain a one-third alert force, SAC conducted three extensive tests. The first test was conducted by the 38th Air Division (two B-47 wings and two KC-97 air refueling squadrons) at Hunter Air Force Base, Georgia, from November 1956 through March 1957. Nicknamed Operation Try Out, this test proved the concept to be feasible, but it pinpointed numerous areas where changes would be required to make it practical. In order to perfect these areas, SAC conducted two additional tests, Operation Watch Tower by the 825th Air Division (two B-47 wings, and one KC-97 air refueling squadron) at Little Rock Air Force Base, Arkansas, from April to November, and Operation Fresh Approach by the 9th Bomb Wing, a B-47 wing complete with one KC-97 air refueling squadron, at Mountain Home Air Force Base, Idaho, in September.

Convinced that the concept would work, although there still remained many organizational and operational details to be worked out, General Power directed that ground alert operations commence at several CONUS and overseas bases on 1 October.

*Reflex Action.* In July, Reflex Action commenced with four Second Air Force wings sending five B-47s each to Sidi Slimane Air Base, French Morocco. This new system of operation was based on the premise that a few crews and aircraft on ground alert at overseas bases would be more effective than maintaining entire wings at these bases on 90-day rotational training assignments. If successful, SAC planned to replace the 90-day wing rotational program at all overseas bases with Reflex Action, with aircraft and crews being frequently rotated from bases in the United States. On 1 October, the Reflex bombers at Sidi Slimane were placed on ground alert along with those aircraft at CONUS bases.

*B-47 record flight from Guam to French Morocco.* On 14 August, a 321st Bomb Wing B-47 under the command of Brigadier General James V. Edmundson, SAC Deputy Director of Operations, made a record nonstop flight from Anderson Air Force Base, Guam, to Sidi Slimane Air Base, French Morocco, a distance of 11,450 miles in 22 hours and 50 minutes. The flight required four refuelings by KC-97 tankers.

*B-47 equipping program completed.* In February, the 100th Bomb Wing, Pease Air Force Base, New Hampshire, was fully equipped with B-47s. The 100th Bomb Wing, the famous "Bloody Hundredth" of World War II, was the 29th and last SAC wing to be equipped with B-47s (one of these wings, the 93d, had converted to B-52s in 1955).

*First KC-135.* The first KC-135 (serial number 55-3127) all-jet tanker was delivered to the 93d Air Refueling Squadron, Castle Air Force Base, California, on 28 June. Jet tankers drastically reduced the time involved in air refueling operations. With a KC-97, the bomber had to slow down and descend to lower altitudes than normal to effect the hookup. With a KC-135, the refueling rendezvous could be conducted at the bomber's normal speed and altitude. It was estimated that the total flying time on the B-52 around-the-world



flight, Operation Power Flite, could have been cut by five to six hours if KC-135s had been available.

By the end of the year, two additional air refueling squadrons, the 42d at Loring Air Force Base, Maine, and the 99th at Westover Air Force Base, Massachusetts, had commenced receiving KC-135s.

*First U-2.* On 11 June, the first U-2 (serial number 56-6696), was delivered to the 4080th Strategic Reconnaissance Wing, Laughlin Air Force Base, Texas.

*Operation Power Flite, B-52 around-the-world flight and sixth Mackay Trophy.* From 16 to 18 January, three B-52Bs of the 93d Bomb Wing made a nonstop, round-the-world flight. The flight was under the command of Major General Archie J. Old, Jr., Fifteenth Air Force Commander. General Old rode aboard the lead plane, Lucky Lady III, serial number 53-0394, which was commanded by Lieutenant Colonel James H. Morris. Colonel Morris had served as copilot on the Lucky Lady II flight in 1949.

Five aircraft, including two spares, started the trip from Castle Air Force Base, California. One bomber, unable to take on fuel at the first inflight refueling rendezvous with KC-97s, landed at Goose Air Base, Labrador; while the second spare continued on with the main flight until after receiving the second KC-97 inflight refueling over Casablanca, French Morocco, at which time it left the flight and landed at Brize Norton RAF Station, England, according to plan. With the aid of three more KC-97 inflight refuelings, the Lucky Lady III and its two companions completed the trip without incident.

The only deviation from the plan occurred at the end of the trip. The flight plan called for the lead aircraft to land at March Air Force Base, California, and the other two to land at their home base. Because of fog at Castle, however, all three bombers landed at March, after having completed the 24,325-mile flight in 45 hours and 19 minutes, less than one-half the time required on the Lucky Lady II flight.

General LeMay was on hand to personally congratulate the crews and to present each with the Distinguished Flying Cross. General LeMay said the flight was a "demonstration of SAC's capabilities to strike any target on the face of the earth."

Subsequently, the National Aeronautic Association recognized Operation Power Flite as the outstanding flight of 1957 and named the 93d Bomb Wing as recipient of the Mackay Trophy.

*Beginning of B-47 Phase Out Program.* On 14 October 1957, the first RB-47E type aircraft (serial number 51-5272), was sent to the storage facility at Davis-Monthan Air Force Base, Arizona. The aircraft was assigned to the 91st Strategic Reconnaissance Wing, Lockbourne Air Force Base, Ohio. It was inactivated on 8 November 1957. With inactivation of the 91st, the number of wings equipped with B-47 type aircraft was reduced to 32—28 bomb wings and four strategic reconnaissance wings.

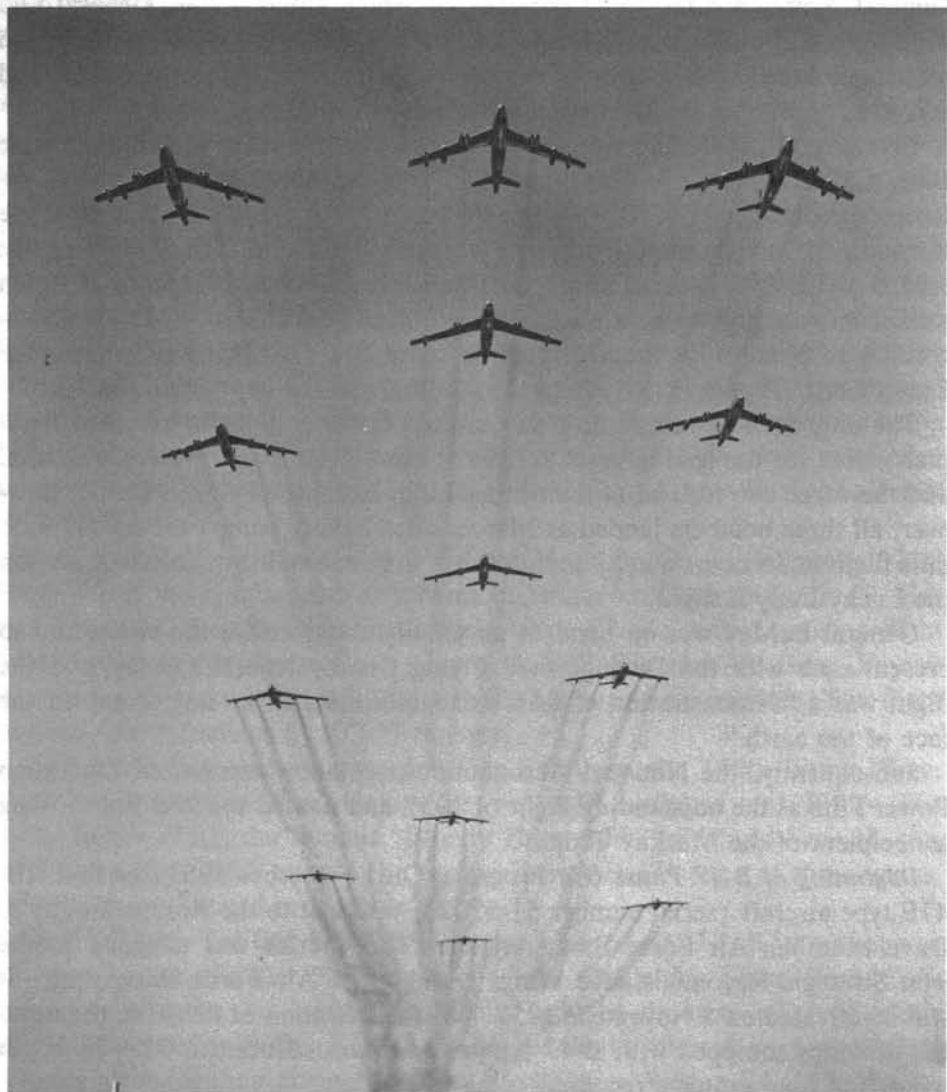
*Strategic Fighter Force.* Because of technological advances, changes in tactics, and the programmed phase out of the slow-moving B-36, SAC's stra-



tegic fighter wings were no longer required for escort duty. One wing was transferred to TAC on 1 April, three were transferred to TAC on 1 July, and two were inactivated on 1 July.

*Phase out of KB-29s.* SAC also disposed of its KB-29 tankers, which had been used primarily to support F-84s. On 25 November, the last two KB-29Ps (serial numbers 44-83956 and 44-84075) assigned to the 27th Air Refueling Squadron, Bergstrom Air Force Base, Texas, were transferred to the USAF aircraft storage facility at Davis-Monthan Air Force Base, Arizona.

*KC-135 world record flights by General LeMay.* On 11 and 12 November, General Curtis E. LeMay, Vice of Chief of Staff, piloting a KC-135 (serial



A rare formation of strategic bombers: These are B-47s during a display of U.S. strategic air power over Washington, D.C. Once the most numerous aircraft in SAC, all were discarded by the end of 1967. Later, the Navy withdrew some from storage for electronic warfare development programs (designated EB-47E). (Boeing photo)

number 55-3126), established an official world record nonstop, nonrefueled flight of 6,322.85 miles from Westover Air Force Base, Massachusetts, to Buenos Aires, Argentina. Total flying time was 13 hours, 2 minutes and 51 seconds. By flying around the hump of Brazil, he added approximately 1,000 miles to the direct airline distance from Westover to Buenos Aires.

On the return flight of 13 November, General LeMay flew a more direct route, 5,204 miles, and established a world course speed record from Buenos Aires to Washington, D.C., averaging 471.451 mph in 11 hours, 3 minutes, 57.38 seconds. The LeMay flights were part of Operation Long Legs, the nickname for the U.S. Air Force's participation in Argentina's Annual Aeronautics Week.

*B-52 nonstop flight.* In another phase of Operation Long Legs that was conducted on 16 and 17 November, six B-52s of the 42d Bomb Wing flew a 10,600 mile nonstop, round-trip flight from Homestead Air Force Base, Florida, to Buenos Aires and back to Plattsburgh Air Force Base, New York. This flight was made possible by three inflight refuelings, two by KC-97s and one by a KC-135.

## **Bombing and Reconnaissance Competition**

Once again, the bombing and reconnaissance competitions were combined and held from 30 October through 6 November. Pinecastle Air Force Base, Florida, was the staging base for 28 B-47 and five RB-47 wings, while Carswell Air Force Base, Texas, provided the same services for five B-36 and five B-52 wings. After an absence of several years, the Royal Air Force entered the competition with two Vulcan and two Valiant aircraft and crews.

With exception of the crew and wing navigation awards, which were won by a B-36 wing, the B-47 units won all the major events in which they were pitted against B-36 units. The Fairchild Trophy was won by the 321st Bomb Wing, a Second Air Force unit. The 321st also won the McCoy Trophy, a one-time award for the best B-47 wing. This trophy was named after Colonel Michael N. W. McCoy, who was serving as 321st Wing Commander at the time of his death in a B-47 aircraft accident on 9 October 1957. This accident also took the life of Group Captain John Woodroffe, commander of the Royal Air Force contingent that was in the United States for the SAC Bombing Competition.

Eighth Air Force's 26th Strategic Reconnaissance Wing won the P. T. Cullen Award.

## **Missiles**

*Snark program.* In March, Headquarters USAF selected Presque Isle Air Force Base, Maine, as the first Snark base. In May, Headquarters USAF selected Patrick AFB, Florida, as the Snark training and testing site. Effective 15 December, SAC activated the 556th Strategic Missile Squadron at Patrick AFB. In July, Headquarters USAF cancelled the air-breathing Navaho missile in order to concentrate upon higher priority ballistic missiles.

# 1958

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## **Resources**

<i>Personnel</i>	258,703 (34,112 officers, 199,562 airmen, 25,029 civilians)
<i>Tactical Aircraft</i>	3,031 (22 B-36, 380 B-52, 1,367 B-47, 176 RB-47, 182 KC-135, 780 KC-97, 51 C-124, 54 F-86, 19 RB-57)
<i>Aircraft Units</i>	<p>11 Heavy Bomb Wings, nine (six 45 UE and three 30 UE) equipped or equipping with B-52s, and two 30 UE) phasing out their B/RB-36s</p> <p>Three Heavy Strategic Wings (15 UE), two equipped and one partially equipped with B-52s, and 11 without aircraft in various stages of development</p> <p>28 Medium Bomb Wing (45 UE) with B-47s</p> <p>Three Medium Strategic Reconnaissance Wings (45 UE) with RB-47s</p> <p>One Combat Crew Training Wing (90 UE) with B/RB-47s</p> <p>34 Medium Air Refueling Squadrons (20 UE) with KC-97s</p> <p>One KC-97 Combat Crew Training Wing (40 UE)</p> <p>14 Heavy Air Refueling Squadrons (eight 20 UE and six 10 UE), seven fully equipped and one partially equipped with KC-135s and six with no aircraft</p> <p>Four Strategic Support Squadrons (12 UE), three with C-124s and one without aircraft</p> <p>One Light Strategic Reconnaissance Wing with RB-57s and U-2s</p> <p>Two Fighter Interceptor Squadrons (24 UE) with F-86s (these squadrons were located in Spain)</p>
<i>Missile Units</i>	Three Atlas D squadrons (one three UE, one six UE, and one nine UE), and one Snark squadron (no UE), none equipped with missiles

## **Budget and Financial Status** **(FY 58, as of 30 June 1958)**

<i>Operations and Maintenance</i>	\$560,539,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL)
<i>Assets</i>	\$12,092,568,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,316,350,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment
<i>Active Bases</i>	39 in CONUS and 25 overseas (United Kingdom, Spain, French Morocco, Guam, Greenland, Labrador, Newfoundland, and Puerto Rico)

## **Organization**

*Reorganization to support the One-third Alert.* The reorganization of tactical wings and air base groups to support the one-third ground alert concept was completed at 11 bases in the latter part of the year. The new organizational structure evolved out of the extensive service tests (Try Out, Watch Tower, and Fresh Approach) conducted in 1956 and 1957. It differed appreciably from the old structure that had been in effect since 1951. Since ground alert emphasized combat-ready aircraft and combat-ready crews, a deputy commander for maintenance and a deputy commander for operations were authorized to assist the wing commander, replacing the directorate system that had been in operation since 1951. Within each B-47 wing, a fourth bomb squadron was activated since alert operations logically fell into a four-cycle arrangement: ground alert duty, flight planning, flying, and a day off.

In order to bring similar functions under a single control, organizational maintenance squadrons were organized to replace periodic maintenance squadrons and to absorb all maintenance functions previously performed by the tactical squadrons. Air base groups were redesignated combat support groups in an attempt to more closely relate support functions to the ground alert requirement. Tactical hospitals were inactivated and USAF hospitals were discontinued. Medical functions were consolidated into medical groups, which were assigned directly to the wing commanders on single wing bases and to air division headquarters on double wing bases. Undoubtedly, the centralization of maintenance was the most important element of the reorganization. The 42d Bomb Wing's experience in Head Start I also substantiated the need for centralized maintenance in support of an airborne alert.

The reorganization started at two bases, Little Rock Air Force Base, Arkansas, and Lincoln Air Force Base, Nebraska, on 1 September. Beginning on 1 October, one base in each of the three numbered air forces would be reorganized on the first of each month.

The reorganization also applied to the B-52 wings, except for the activation of a fourth tactical squadron.

*Organization of strategic wings.* While the ground alert force was rapidly approaching its one-third objective, SAC was taking other actions to insure a survivable and responsive bomber force. During the expansion of the early and mid-1950s, bases had become overcrowded, with some of them supporting as many as 90 B-47s and 40 KC-97s. The first B-52 wings were also extremely large, composed of 45 bombers and 15 or 20 KC-135s, all situated on one base. As the Soviet missile threat became more pronounced and warning time became less, SAC bases presented increasingly attractive targets. Several KC-97 squadrons were separated from their parent B-47 wings and relocated to northern bases. The B-47 dispersal program was a long-range one and would be effected primarily through the phase out of wings in the late 1950s and early 1960s.

With the B-52 force, which was still growing, dispersal became an active program in 1958. Basically, the B-52 dispersal program called for the larger B-52 wings already in existence to be broken up into three equal-sized wings of 15 aircraft each, with two of them being relocated, normally to bases of other commands. In essence, each dispersed B-52 squadron became a strategic wing. This principle would also be followed in organizing and equipping the remainder of the B-52 force. The entire force was established at 42 squadrons by Headquarters USAF in 1958. Ideally, each B-52 wing would have one air refueling squadron of 10 or 15 aircraft.

By the end of 1958, SAC had activated 14 strategic wings, but only three had aircraft assigned. The others were in various stages of development, with some having only a headquarters and one officer and one airman authorized.

*5th Air Division inactivated.* On 15 January, Headquarters 5th Air Division was inactivated and the responsibility for directing operations in North Africa was transferred from Second Air Force to Sixteenth Air Force.

*Fighter interceptor squadrons assigned to SAC.* On 5 July and 1 September, SAC acquired the 497th and the 431st Fighter Interceptor Squadrons from the Air Defense Command and the US Air Forces in Europe, respectively. Located in Spain, these two squadrons were equipped with F-86 fighters.

## **Operations**

*The Lebanon Crisis.* In mid-July, the President of Lebanon, fearful of Soviet-sponsored intervention, asked the United States for help. President Eisenhower took action by sending ground, naval, and air forces to the area. He also ordered SAC to place its bomber forces on alert. Generation of additional ground alert forces (SAC was already in the process of building up its ground alert forces to the one-third level) began immediately. Within a few hours, over 1,100 aircraft were poised and ready for takeoff. A full show-of-force was maintained for several days. When it became clear that the Russians did not intend to invade Lebanon, the alert forces were gradually phased down.

*Taiwan Crisis.* Inspired by Russia's actions in the Middle East, the Chinese Communists began a heavy artillery bombardment of the islands of Quemoy



and Matsu, off the China coast. Again the U.S. took swift action by ordering the Seventh Fleet to the Formosa Strait. In support of the U.S. position of protecting Taiwan, SAC increased the strength of its ground alert forces at Anderson Air Force Base, Guam, and alerted several bomb wings for possible contingency operations in the Pacific. Since the Commander-in-Chief of Pacific Command did not anticipate having to use the SAC forces, they soon returned to their normal configuration.

*One-Third Alert and expanded combat crew training.* With adoption of the one-third alert concept, additional combat ready crews were required. On 15 May and 15 June, SAC converted the 70th and 90th Strategic Reconnaissance Wings' primary missions from reconnaissance to B-47 crew training to supplement the flow of crews from the Air Training Command's 3520th Combat Crew Training Wing, McConnell Air Force Base, Kansas.

On 1 July, SAC assumed responsibility for all B-47 and KC-97 combat crew training from the Air Training Command: the 3520th was transferred to SAC and redesignated the 4347th Combat Crew Training Wing and the 4397th Air Refueling Wing was organized at Randolph Air Force Base, Texas, assigned to SAC, and given the job of training KC-97 crews.

*Termination of B-47 rotational training.* The success of the ground alert program and Reflex Action prompted SAC to discontinue the 90-day rotational training program that had characterized B-47 operations since 1953. The 100th Bomb Wing, the last B-47 wing to become combat ready, was the last B-47 wing to perform the 90-day rotational assignment. This assignment was conducted at Brize Norton RAF Station, United Kingdom, from early January to early April. Upon departure of the 100th, B-47 Reflex operations began at Brize Norton. Reflex had already commenced in early January at Greenham Common and Fairford.

*Airborne alert test.* From 15 September through 15 December, the 42d Bomb Wing, Loring Air Force Base, Maine, successfully conducted a B-52 airborne alert test, nicknamed Head Start I.

*Operation Top Sail KC-135 Record Flights.* On 27 and 29 June, two KC-135s of the 99th Air Refueling Squadron broke the existing speed records in flights from New York to London and return. The actual official records were established by the lead aircraft, "Alfa" (serial number 56-3630), which was piloted by Major Burl B. Davenport, were as follows: New York to London—five hours, 29 minutes, and 14.64 seconds; London to New York—five hours, 53 minutes, and 12.77 seconds (the record-making flights originated at Westover Air Force Base, Massachusetts). A third KC-135, also scheduled to participate in the flight, crashed on takeoff at Westover. Among the fifteen casualties were Brigadier General Donald W. Saunders, 57th Air Division Commander, and Lieutenant Colonel George M. Broutsas, 99th Air Refueling Squadron Commander.

*KC-135 weight lifting record.* On 24 September, another KC-135 of the 99th Air Refueling Squadron, Westover Air Force Base, Massachusetts, piloted by Captain William H. Howell, captured the official world weight-



lifting record by lifting a payload of 78,089.5 lbs. to an altitude of 2,000 meters (approximately one and one-quarter mile). This broke the old record of 44,214 lbs. airlifted by a Russian TU-104A jet transport on 6 September. The KC-135 carried a load of nails, concrete block, and steel plate.

*KC-135 record flight Operation Jet Stream.* On 7 and 8 April, a KC-135 (serial number 56-3601) of the 93d Air Refueling Squadron, Castle Air Force Base, California, established two official world records: distance in a straight line without refueling, 10,229.3 miles, Tokyo to Lajes, Azores; speed, 492.262 mph, Tokyo to Washington, D.C., in 13 hours, 45 minutes and 46.5 seconds. The KC-135 was piloted by Brigadier General William E. Eubank, Jr., 93d Bomb Wing Commander.

*KC-135 world record flight.* On 17 September, Captain Charles E. Gibbs, flying a KC-135 of the 92d Air Refueling Squadron, Fairchild Air Force Base, Washington, established four world records: distance in a closed circuit without refueling, 3,125.56 statute miles; speed for 2,000 kilometers, 589.278 mph, closed circuit with 2,204.6, 4,409.2, 11,023, and 22,046 lb. payloads; speed for 5,000 kilometers, 587.136 mph, closed circuit; and speed for 5,000 kilometers, 587.136 mph, closed circuit, with 2,204.6, 4,409.2, 11,023, and 22,046 lb. payloads.

*B-52 world record flights.* On 26 September, two B-52Ds of the 28th Bomb Wing, Ellsworth Air Force Base, South Dakota, established world speed records over two different routes: speed for 10,000 kilometers in a closed circuit without payloads, 560.705 mph, Lieutenant Colonel Victor L. Sandacz, pilot; speed for 5,000 kilometers in a closed circuit without payload, 597.675 mph, Captain Cholett Griswold, pilot.

*Cheney Award.* On 28 April, a 341st Bomb Wing B-47 took off from Dyess Air Force Base, Texas, on a training flight. The B-47 carried a three-man crew and a navigator-instructor. Approximately three hours out of Dyess, there was an explosion in one of the engines and the aircraft commander gave the proper order to bail out. He and the navigator parachuted to safety. As 1st Lieutenant James E. Obenauf, the copilot, prepared to leave the plane through the escape hatch (his ejection seat had failed to work), he noticed Major Joseph Maxwell, the instructor-navigator, was unconscious. Unable to revive Major Maxwell, Lieutenant Obenauf stayed with the crippled aircraft, which was in danger of burning. From the back-seat position, he flew the B-47 back to Dyess and successfully landed it. For this heroic act, Lieutenant Obenauf received the Cheney Award and Distinguished Flying Cross.

## **Bombing Competition**

The tenth competition was held from 13 through 18 October, with RB/B-47s and the Royal Air Force's Valiants staging out of March Air Force Base, California, and the B-52s and the B-36s staging out of Castle Air Force Base, California. SAC participants included four crews from each of 38 bomb wings (two B-36, 26 B-47, and 10 B-52) and one RB-47 strategic reconnaissance wing. The Royal Air Force sent eight crews. Once again the competition was

dominated by B-47 wings which won the first three places in combined bombing and navigation. The Fairchild Trophy went to Second Air Force's 306th Bomb Wing.

*SAC participation in RAF competition.* For the first time, SAC participated in the RAF Bombing Competition, held from 14 through 20 May. SAC's representative was the 92d Bomb Wing, which deployed six B-52s and crews, including two alternate aircraft and crews, to Brize Norton RAF Station. The 92d won five of the six awards for which it was eligible to compete.

## Missiles

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base, California: SAC—0; Other Agencies—1.

*1st Missile Division assigned to SAC.* Air Force's strategic missiles were developed to the point where they could start the transition from the research and development to the operational stage. As part of this transition, the 1st Missile Division, located at Cooke Air Force Base (renamed Vandenberg in October), California, was transferred from Air Research and Development Command to SAC. The transfer was effected on 1 January, and Major General David Wade assumed command of the division the following day. Included in the transfer was the 704th Strategic Missile Wing, which had been activated as USAF's first missile wing on 1 July 1957. The 704th had a dual mission of training missile crews for other units and attaining an operational capability with the Atlas ICBM. It had one Atlas D squadron, the 576th Strategic Missile Squadron assigned. Activated on 1 April, the 576th had a dual responsibility of maintaining an Atlas D alert force and providing training for other SAC Atlas units.

*SAC MIKE established.* On 1 January, the Office of Assistant CINCSAC (SAC MIKE) was organized at Inglewood, California. Designed to serve as an extension of Headquarters SAC, this office was responsible for working closely with the Air Force Ballistic Missile Division and providing SAC with the latest techniques and information on ballistic missiles and related programs.

*Atlas and Titan Wings activated.* The first Atlas wing was activated at Francis E. Warren Air Force Base, Wyoming, on 1 February under the designation of 4320th Strategic Missile Wing. In an inactivation and activation transaction on 23 February, the designation was changed to 706th Strategic Missile Wing (ICBM Atlas). Later in the year, two Atlas D squadrons were activated and assigned to the 706th. On 25 September, the first Titan unit, the 703d Strategic Missile Wing (ICBM-Titan) was activated at Lowry Air Force Base, Colorado. Both missile wings were assigned to the 1st Missile Division.

*Thor program.* Under an early 1958 agreement, the United States and the United Kingdom shared responsibility for the Thor missile program. The United Kingdom agreed to build four bases and to man four Thor squadrons, while the United States agreed to furnish the missiles and provide training for the RAF crews. Effective 20 February, the 705th Strategic Missile Wing (IRBM-Thor) was activated at Lakenheath RAF Station and assigned to the

7th Air Division. Shortly thereafter, the 705th moved to South Ruislip where it merged with Headquarters 7th Air Division. It was responsible for monitoring the Thor program and for providing technical assistance to the four RAF squadrons. Thor training for RAF crews began at Vandenberg in August. This training was provided by the 392d Missile Training Squadron which was activated at Vandenberg on 15 September 1957.

*First Snark launched.* On 27 June, at Patrick Air Force Base, Florida, the 556th Strategic Missile Squadron launched its first Snark missile.

*First missile launched from Vandenberg.* On 16 December, the first missile, a Thor, was launched from Vandenberg by a crew of the 1st Missile Division backed up by contractor personnel. This was officially credited as an Air Research and Development Command launch.

*Jupiter program.* SAC was also responsible for training Italian and Turkish crews in the operation of the U.S. Army-developed Jupiter, another intermediate range ballistic missile. In 1958, three SAC Jupiter squadrons were activated at Redstone Arsenal, Alabama, to handle this responsibility.

*Rascal cancelled.* On 29 November, Headquarters USAF cancelled the Rascal air-to-surface missile which was designed to be carried aboard modified B-47s (designated DB-47s). The entire SAC program was to have been concentrated in one squadron of the 321st Bomb Wing, McCoy Air Force Base, Florida. The Rascal was cancelled in deference to the Hound Dog and Quail, which were showing more promise of being effective weapon systems.

*Goose cancelled.* On 12 December, the Goose missile development program was terminated. Designed to simulate a B-52 or a B-47 on radar screens, the Goose was a turbojet subsonic decoy missile that was programmed to be launched from the United States. It was dropped in favor of the Snark, which carried a nuclear weapon.

*"Peace Is Our Profession" adopted as SAC slogan.* In late 1957, as part of a reenlistment program, a 50-foot Christmas tree was erected in front of the Headquarters SAC administration building. Unit commanders could light one of the bulbs by reenlisting a given number of first-team airmen. A status board was maintained nearby to reflect the names of those commanders who met the quota. A painter was called upon to affix a sign to the board reflecting the theme of the reenlistment drive—Maintaining Peace is Our Profession—but he found insufficient room to accommodate all these words. Lieutenant Colonel Edward Martin and Chief Warrant Officer Ben Kohot, project officers for the Tree of Peace program, decided to omit the word "Maintaining." While visiting Headquarters SAC, Colonel Charles T. Van Vliet, Eighth Air Force Director of Information, saw the sign, liked it, and took the idea back to Westover Air Force Base, Massachusetts. Subsequently, "Peace is Our Profession" appeared on a large sign at Westover's main entrance.

## Resources

<i>Personnel</i>	262,609 (36,435 officers, 199,970 airmen, 26,204 civilians)
<i>Tactical Aircraft</i>	3,207 (488 B-52, 1,366 B-47, 174 RB-47, 745 KC-97, 322 KC-135, 50 C-124, 6 RB-57, 56 F-86)*
<i>Aircraft Units</i>	<p>12 Heavy Bomb Wings, six 45 UE, five with B-52s and one with no aircraft, two 30 UE with B-52s, and four 15 UE with B-52s</p> <p>10 Heavy Strategic Wings (15 UE), nine equipped and one partially equipped with B-52s, and 12 without aircraft.</p> <p>27 Medium Bomb Wings (26 45 UE and one 30 UE), 26 with B-47s, one reduced to one officer and one airman manning status and its aircraft used to equip two superstrength B-47 wings with 70 aircraft each</p> <p>Three Medium Strategic Reconnaissance Wings (45 UE) with RB-47s</p> <p>24 Heavy Air Refueling Squadrons, ten 20 UE, eight fully and two partially equipped with KC-135s, one 15 UE fully equipped, and 13 10 UE, 11 fully and one partially equipped with KC-135s, and one without aircraft</p> <p>33 Medium Air Refueling Squadrons (20 UE) with KC-97s</p> <p>One Light Strategic Reconnaissance Wing with RB-57s and U-2s</p> <p>One B-47 Combat Crew Training Wing (90 UE)</p> <p>One KC-97 Combat Crew Training Wing (45 UE)</p> <p>Three Strategic Support Squadrons (16 UE) with C-124s</p> <p>Two Fighter Interceptor Squadrons (24 UE) with F-86s and located in Spain</p>

\*Highest number in SAC history.

## Budget and Financial Status (FY 59, as of 30 June 1959)

<i>Operations and Maintenance</i>	\$650,652,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL).
<i>Assets</i>	\$14,152,248,000, includes real property, inventories, equipment, and weapon systems.
<i>Operating Expenses</i>	\$1,617,130,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment.
<i>Missiles</i>	6 Atlas D, 13 Snark, 5 Thor, 1 Hound Dog
<i>Missile Units</i>	Four Atlas D Squadrons, two 6 UE, one with and one without missiles, and two 9 UE without missiles, and one Snark wing (30 UE), partially equipped
<i>Active Bases</i>	40 in CONUS; 25 overseas (United Kingdom, Spain, French Morocco, Guam, Greenland, Newfoundland, and Puerto Rico)

## Organization

*Numbered Air Force realignment.* Effective 1 January, SAC realigned several bases and units between the Second and Eighth Air Forces. One base and its assigned units were transferred from the Eighth to the Fifteenth Air Force. Basically, this realignment placed the Eighth Air Force in control of forces in the Eastern section of the United States and Second Air Force in command of forces in the Central section. The Fifteenth's area of responsibility remained in the Western section of the country.

*Dispersed air divisions.* Prior to 1959, the air division headquarters was normally located on a double-wing base. In addition to the headquarters element, each air division consisted of two combat wings, a combat support group, and a medical facility. In a few cases, air division headquarters were located on single-wing bases, but in these cases, too, all elements of the air division were located on the same base.

With tremendous expansion accompanying the dispersal program, SAC found it necessary to expand the supervisory role of the air division headquarters, to increase the personnel assigned from approximately 17 to 25, and to activate new ones. Specifically, the air division's responsibility was extended to organizations that were located on bases other than the one that supported the headquarters element. As initiated on 1 January, the concept was first applied to those air divisions that were situated on single wing bases, but it was subsequently applied to those on double wing bases. In the last six months of 1959, six new air division headquarters were activated. The number of wings assigned to these air divisions varied from three to five.

## Operations

*Airborne alert.* Based upon satisfactory results in 1958, SAC continued to test airborne alert in 1959. As General Power testified before Congress in





An RB-52B poses for its picture during a high altitude flight. The -B variant was convertible to the "recce" configuration with a bomb bay equipment-operator pod. Although two replacement aircraft were developed, the B-70 and then B-1, the B-52 will carry on as the mainstay of the SAC bomber force at least well into the 1980s.

February: "We in the Strategic Air Command have developed a system known as airborne alert where we maintain airplanes in the air 24 hours a day, loaded with bombs, on station, ready to go to the target. . . . I feel strongly that we must get on with this airborne alert. . . . We must impress Mr. Khrushchev that we have it, and that he cannot strike this country with impunity."

*Low level training.* In November, SAC and the Federal Aviation Agency jointly announced the establishment of seven special air routes over which SAC bombers would fly low-level training missions. Each corridor was to be approximately 20 miles wide and up to 500 miles long. Improved Soviet air defenses at high altitude had prompted SAC to concentrate on bombing at low altitudes, where detection was more difficult.

*Last B-36 retired.* On 12 February, SAC's last B-36 bomber, a "J" model (serial number 52-2827) which had been assigned to the 95th Bomb Wing at Biggs Air Force Base, Texas, was flown to Amon Carter Field, Fort Worth, Texas, to be placed on display as a permanent memorial. With the departure of this B-36, SAC had an all jet bomber force.

*First B-52G.* The first B-52G (serial number 57-6478) was delivered to the 5th Bomb Wing at Travis Air Force Base, California, on 13 February.

The B-52G, which would subsequently become the most widely used B-52 in SAC, contained several refined features over previous models. The addition of fuel tanks in the wings and permanently affixed fuel tanks under the wings increased the unrefueled range of this bomber to approximately 10,000 miles as compared to 6,000 miles for the earlier models. The bomber was also



originally designed to carry two nuclear-armed Hound Dog air-to-surface missiles, thereby increasing its bombing capacity.

*Delivery of first Hound Dog.* Powered by a single turbojet engine, the 43-foot long Hound Dog could be launched from a B-52 when the bomber was over 500 miles away from the target. Two Hound Dogs could be carried under the wings of the B-52G and on modified earlier model Stratofortresses. The B-52H, which was scheduled for delivery to SAC in 1961, was also designed to carry two Hound Dogs.

On 21 December, the first Hound Dog was assigned to SAC. On 23 December, this missile was delivered to the 4135th Strategic Wing, Eglin Air Force Base, Florida, the unit responsible for supporting Category III Hound Dog tests in coordination with ARDC's Air Proving Ground Center.

*The Daedalian Trophy.* For its 1959 aircraft accident rate, the lowest in USAF, the Strategic Air Command was awarded the Daedalian Trophy.

## **Bombing Competition**

The eleventh competition, which was held from 25 through 30 October, was unique in that air refueling squadrons participated for the first time in the history of the meet. Two crews represented each of the 47 bomb wings, 27 B-47 and 20 B-52, and each of the 47 air refueling squadrons, 27 KC-97 and 20 KC-135. This was the largest bombing competition ever held. All bombers staged out of McCoy Air Force Base, Florida, while all tankers operated out of Homestead Air Force Base, Florida. Second Air Force's 307th Bomb Wing, a B-47 unit, won the Fairchild Trophy and the Second's 55th Air Refueling Squadron, a KC-97 unit, won the award for the best air refueling squadron.

## **Missiles**

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base and the U.S. Naval Missile Facility, Point Arguello, California. All SAC launches were from Vandenberg: Launched by: SAC—1; Other Agencies—30

*First missile wing to a numbered Air Force.* The first missile wing was assigned to a numbered air force 1 January, when the 702d Strategic Missile Wing (ICM-Snark) was activated at Presque Isle Air Force Base, Maine, and assigned to the Eighth Air Force. On 27 May, the first Snark missile was delivered to the 702d, and on 16 July, the 556th Strategic Missile Squadron, which had been stationed at Patrick Air Force Base, Florida, conducting test launches, and under the direct control of SAC, was inactivated instead of moving to Presque Isle as planned. The 702d was unique because it had no subordinate squadrons. All operational and maintenance functions associated with the Snark were handled by the deputy commander for missiles.

Designated a surface-to-surface intercontinental missile, the Snark was a small, turbojet-powered pilotless aircraft. Unlike the Atlas and Titan, the Snark was non-ballistic with a subsonic cruising speed. It was designed to

deliver a nuclear warhead on a target approximately 5,000 miles away from the launch site.

*ICBM units assigned to Fifteenth Air Force.* The assignment of ICBM units to numbered air forces continued on 15 January. At that time, the 703d Strategic Missile Wing (ICBM-Titan), located at Lowry Air Force Base, Colorado, and the 706th Strategic Missile Wing (ICBM-Atlas), located at Francis E. Warren Air Force Base, Wyoming, were transferred from the 1st Missile Division to Fifteenth Air Force. Francis E. Warren was also transferred to the Fifteenth. Lowry belonged to the Air Training Command and the 703d was a tenant there. On 1 February, the 395th Missile Training Squadron was activated at Vandenberg Air Force Base, California, to provide training for crews to man the other Titan units to be activated in SAC.

*First Atlas launch.* On 9 September, a crew of the 576th Strategic Missile Squadron, which was assigned to the 1st Missile Division, launched the first Atlas missile, a "D" model, from Vandenberg. The shot traveled approximately 4,300 miles at 16,000 mph. General Power declared the Atlas to be operational. Designed to deliver a nuclear warhead approximately 5,500 nautical miles, the Atlas D was powered by a cluster of liquid propellant rocket engines, burning liquid oxygen and RP-1, a kerosene-like fuel. It was approximately 75 feet long and 10 feet in diameter. The first Atlas D was placed on alert at Vandenberg on 31 October.

*Last Atlas D Squadron activated; first missile unit assigned to Second Air Force.* SAC's fourth and last Atlas D unit was activated at Offutt Air Force Base, Nebraska, and assigned to the Second Air Force on 15 August.

*Thor program.* On 16 April, an RAF crew launched its first Thor from Vandenberg as part of the training program. By the end of the year, three squadrons of Thor IRBMs had been turned over to the Royal Air Force and were operational in the United Kingdom.

# 1960

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## Resources

<i>Personnel</i>	266,788 (37,562 officers, 202,507 airmen, 26,719 civilians)
<i>Tactical Aircraft</i>	2,992 (538 B-52, 1,178 B-47, 113 RB-47, 405 KC-135, 689 KC-97, 19 B/TB-58, 50 C-124)
<i>Aircraft Units</i>	12 Heavy Bomb Wings, three 45 UE, two 30 UE, and seven 15 UE, with B-52s 22 Heavy Strategic Wings (15 UE), 16 with B-52s, six without aircraft 25 Medium Bomb Wings, 24 (23 45 UE and one 30 UE), with B-47s (includes two super strength wings with 70 aircraft each); one had been reduced to one officer and one airman manning status to provide resources for the two 70 aircraft wings, and one (36 UE), equipping with B-58s Two Medium Strategic Reconnaissance Wings (45 UE) with RB-47s 30 Medium Air Refueling Squadrons (20 UE) with KC-97s One B-47 Combat Crew Training Wing (90 UE) One KC-97 Combat Crew Training Wing (40 UE) 29 Heavy Air Refueling Squadrons, 12 20 UE, one 15 UE, and 16 10 UE, with KC-135s One Light Strategic Wing with U-2s Three Strategic Support Squadrons (16 UE) with C-124s 30 Snark, 12 Atlas, 93 Quail, 54 Hound Dog Four Atlas D Squadrons, two 6 UE fully equipped and two 9 UE without missiles; three Atlas E Squadrons (9 UE) without missiles Three Titan I Squadrons (9 UE) without missiles One Strategic Missile Wing (30 UE) equipped with Snark missiles
<i>Missiles</i>	
<i>Missile Units</i>	
<i>Active Bases</i>	46 in CONUS; 20 overseas (Puerto Rico, United Kingdom, Spain, French Morocco, Labrador, Newfoundland, Guam, and Canada)

## **Budget and Financial Status** **(FY 60, as of 30 June 1960)**

<i>Operations and Maintenance</i>	\$713,661,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL)
<i>Assets</i>	\$15,738,327,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,742,225,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

## **Organization**

*JSTPS established.* While SAC still controlled most of the country's nuclear strength in 1960, substantial additional striking power was being provided by ballistic missile submarines and nuclear-armed missile and air units of tactical forces deployed in forward areas. This proliferation of nuclear strength brought with it the need for closer coordination of target planning among the services. Consequently, on 16 August, Secretary of Defense Thomas S. Gates, Jr., publicly announced the creation of the Joint Strategic Target Planning Staff (JSTPS).

Composed of representatives of all services, the JSTPS was charged with the task of preparing and maintaining a National Strategic Target List and a Single Integrated Operational Plan (SIOP) which would commit specific weapon systems to the various targets to be attacked in the event of war. In order to fully use the strategic planning experience and facilities available in SAC, Secretary Gates directed the Commander in Chief of SAC to be the Director of JSTPS and that the staff be collocated with Headquarters SAC at Offutt. On 18 August, Secretary Gates named Rear Admiral (subsequently promoted to Vice Admiral) Edward N. Parker to become Deputy Director of JSTPS.

*Fighter Interceptor Squadrons transferred.* Effective 1 July, the 431st and the 497th Fighter Interceptor Squadrons, which were equipped with F-86s and located in Spain, were transferred to USAFE.

## **Operations**

*First B-58.* On 1 August, General Power accepted the first operational B-58 medium bomber from Air Research and Development Command representatives in a ceremony at Carswell Air Force Base, Texas. This aircraft was one of 12 which were turned over to the 43d Bomb Wing, Carswell Air Force Base, Texas, on that date.

Built by the Convair Division of the General Dynamics Corporation, the B-58 "Hustler" was America's first supersonic bomber. This delta-wing bomber was capable of flying twice the speed of sound (Mach 2) and could be refueled by KC-135 tankers.

*B-52 record flight.* On 14 December, a B-52G of the 5th Bomb Wing.



**A high-altitude U-2 employed in strategic reconnaissance from 1956 onward. Periodically, as in Cuba and the Middle East, the U-2s have been used for tactical reconnaissance of specific weapon installations and troop locations.**

Travis Air Force Base, California, completed an official record-breaking flight of 10,078.84 miles without refueling in 19 hours and 44 minutes. The aircraft, commanded by Lieutenant Colonel T. R. Grissom, flew a closed-circuit course from Edwards Air Force Base, California, to El Paso, Texas, Andrews Air Force Base, Maryland, Ernest Harmon Air Force Base, Newfoundland, Eielson Air Force Base, Alaska, Philip, South Dakota, and back to Edwards.

*Quail missile.* On 27 February, the first Quail missile to be assigned to a SAC unit was delivered to the 4135th Strategic Wing, Eglin Air Force Base, Florida. The 4135th, working closely with Air Research and Development Command's Air Proving Ground Center at Eglin, was responsible for supporting Category III tests of the Quail.

Designated an air decoy missile, the Quail was carried in the bomb bay of a B-52 to be launched while en route to the target. Powered by a single turbo-jet engine, it could fly at approximately the same altitude and speed of a B-52. The "blip" it created on a radar screen was similar to the one produced by a B-52. The B-52G was built to carry four Quail missiles in addition to its normal bomb load.

*First Hound Dog launch.* On 29 February, as part of its Hound Dog Category III testing responsibilities, a B-52G crew of the 4135th Strategic Wing accomplished the first SAC launch of a Hound Dog missile.

In Operation Blue Nose, conducted on 12 April, a B-52G crew of the 4135th Strategic Wing successfully launched a "Hound Dog" missile as the climax of its 20 and one-half hour captive flight to the North Pole and back.



The crew completed extensive tests of both the B-52G and the Hound Dog's guidance system in temperatures as low as 75 degrees below zero.

*First Quail launch.* On 8 June, a B-52G crew of the 4135th Strategic Wing accomplished the first SAC launch of a Quail missile as part of the Category III Test Program.

*Airborne command post test.* On 1 July, SAC began testing an airborne command post at Offutt Air Force Base, Nebraska. Beginning that day and extending throughout the year, one of five specially modified KC-135s of the 34th Air Refueling Squadron was placed on ground alert and periodically tested to determine its ability to take off within 15 minutes. Once airborne, the KC-135's primary mission was to serve as an alternate command post, one that could assume control over the SAC combat force in the event an enemy attack destroyed the underground facility at Offutt and the other command posts collocated with the numbered air force headquarters. On each flight, the KC-135 was manned by a SAC general officer and a team of controllers and communications experts.

*One-Third alert achieved.* In May, SAC reached its goal of maintaining one-third of its bombers and tankers on 15-minute ground alert.

*B-47 dispersal.* On 9 June, SAC began testing a B-47 dispersal program, whereby B-47 aircraft could, in times of crises, be deployed to civilian airfields and non-SAC military bases. This was another means of strengthening reaction capability and insuring a survivable force.

*Transfer of last RB-57.* On 22 April, SAC's last RB-57 ("C" model serial number 53-3839), which had been assigned to the 4080th Strategic Wing at Laughlin Air Force Base, Texas, was transferred to Headquarters Command, Bolling Air Force Base, Washington, D.C.

*Short order.* In March, a new single sideband HF radio communications system began operations. Called "Short Order," the new system consisted of four stations: one at Headquarters SAC and the others at the three numbered air force headquarters in the CONUS. Its primary function was to provide a means of exercising "Positive Control," over SAC bombers which had launched and were en route to their targets. Under "Positive Control" procedures, SAC could launch its bombers and have them fly to a designated point outside enemy territory. Upon reaching this point, the bombers would automatically return to their home bases unless they received orders, "the Go-Code," to proceed to their targets.

## **Bombing Competition**

*Twelfth Competition, first B-58 participation.* Officially titled Combat Competition but still called the Bombing Competition, the 1960 meet was held from 12 through 15 September. It was a different kind of competition. Each numbered air force held a preliminary meet to determine the participants. Only one base, Bergstrom Air Force Base, Texas, was used for staging purposes because only 13 bomb wings and 13 air refueling squadrons were entered. Each numbered air force was represented by two B-52 wings, two



B-47 wings, two KC-135 squadrons, and two KC-97 squadrons. In addition, the 43d Bomb Wing was represented with the new B-58 and a seventh KC-135 was allowed to enter to provide refueling for the Hustler.

*Saunders Trophy.* The 11th Bomb Wing, a B-52 unit of the Second Air Force, won the Fairchild Trophy. The Saunders Trophy, which was first awarded in this competition, was won by the 310th Air Refueling Squadron, a KC-97 unit of the Fifteenth Air Force. Comparable to the Fairchild Trophy, the new air refueling trophy was named for Brigadier General Donald W. Saunders, who had formerly commanded the 57th Air Division at Westover Air Force Base, Massachusetts. General Saunders was killed in the KC-135 that crashed while taking off for a record flight attempt from Westover on 27 June 1958.

*SAC participation in RAF bombing competition.* Fifteenth Air Force's 6th Bomb Wing was selected to represent SAC in the 1960 RAF Bombing and Navigation Competition which was held from 1 through 3 May. Headquarters SAC selected the 6th Bomb Wing on the basis of it being the top B-52 unit in the 1959 SAC Bombing Competition. Flying out of Brize Norton RAF Station, the 6th Bomb Wing's six crews won the best unit award in the combined areas of bombing and navigation. Individual crews of the 6th also won top awards in bombing and in the combined areas of bombing and navigation.



With liquid oxygen bleeding off, an early Atlas missile is fired from the Air Force Missile Test Center at Cape Canaveral, Florida (now Cape Kennedy). There have been no test firings of deployed ICBMs from the interior of the United States because of the political problems of the missiles overflying American cities. The Soviet Union, without such political constraints, have long had a program of test firing missiles from operational silos.

## Missiles

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base and the U.S. Naval Missile Facility, Point Arguello, California. All SAC launches were from Vandenberg: Launched by: SAC—7; Other Agencies—36

*Mobile Minuteman test.* To determine the feasibility of deploying Minuteman ICBMs on mobile railroad car launchers, SAC conducted a series of tests from 20 June to 27 August. Operating out of Hill Air Force Base, Utah, the modified test train traveled across various railroad routes in the Western and Central sections of the United States to study such factors as the ability of the nation's railroads to support mobile missile trains, problems of communication and control, problems of vibration and their probable effect on sensitive missiles and launch equipment as well as the human factors involved in this operation. Six trial runs were projected, but only four were needed to realize all test objectives.

*Thor deployment completed.* On 22 April, the fourth and final Thor squadron, which had been trained at Vandenberg Air Force Base, California, was accepted by the Royal Air Force, thus completing the deployment of this intermediate range ballistic missile to the United Kingdom. On 1 April, the 705th Strategic Missile Wing, which had been located at South Ruislip in the United Kingdom, was discontinued.

*First Snark on alert.* On 18 March, the first Snark intercontinental missile was placed on alert at Presque Isle Air Force Base, Maine.

*Titan I squadrons activated.* Three Titan I squadrons were activated in 1960, with two being assigned to the 703d Strategic Missile Wing, Lowry Air Force Base, Colorado, and one to the 28th Bomb Wing, Ellsworth Air Force Base, South Dakota.

*Atlas E squadrons activated.* Three Atlas E squadrons were activated in 1960, with one being assigned to the 706th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming, one to the 92d Bomb Wing, Fairchild Air Force Base, Washington, and one to the 21st Air Division, Forbes Air Force Base, Kansas.

*Minuteman training squadron activated.* On 1 July, the 394th Missile Training Squadron was activated at Vandenberg Air Force Base, California, to provide combat crew training for the Minuteman squadrons scheduled to be activated in SAC.

# 1961

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## Resources

### *Personnel*

280,582 (37,555 officers, 216,148 airmen, and 26,879 civilians)

### *Tactical Aircraft*

2,759 (571 B-52, 889 B-47, 138 EB/RB-47, 444 KC-135, 651 KC-97, 66 B/TB-58)

### *Aircraft Units*

14 Heavy Bomb Wings (two 45 UE, three 30 UE, and nine 15 UE) all with B-52s except one 15 UE wing

22 Heavy Strategic Wings (15 UE), 21 equipped with B-52s and one with no aircraft

21 Medium Bomb Wings, 19 (45 UE) equipped with B-47s and two (40 UE), one equipped and one partially equipped with B-58s

One B-47 Combat Crew Training Wing (90 UE)

One Medium Strategic Reconnaissance Wing (45 UE) with RB-47s

31 Heavy Air Refueling Squadrons (12 20 UE, two 15 UE, and 17 10 UE) all with KC-135s except two 10 UE units

29 Medium Air Refueling Squadrons (20 UE) with KC-97s

One KC-97 Combat Crew Training Wing (40 UE)

One Light Strategic Reconnaissance Wing with U-2s

### *Missiles*

230 Hound Dog, 397 Quail, 30 Atlas D, 32 Atlas E, 1 Titan I

### *Missile Units*

Four Atlas D Squadrons (two 6 UE and two 9 UE), all equipped

Three Atlas E Squadrons (9 UE each), all equipped

Six Atlas F Squadrons (12 UE each) with no missiles assigned

Six Titan I Squadrons (9 UE each) with no missiles assigned

One Minuteman Squadron (50 UE) without missiles assigned

### *Active Bases*

46 in CONUS; 16 overseas (Puerto Rico, United Kingdom, French Morocco, Spain, Newfoundland, Labrador, Canada, Guam)

## **Budget and Financial Status** **(FY 61, as of 30 June 1961)**

<i>Operations and Maintenance</i>	\$716,489,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL)
<i>Assets</i>	\$15,830,227,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,835,603,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

## **Organization**

*Redesignation of 1st Missile Division.* Effective 21 July, Headquarters 1st Missile Division, located at Vandenberg Air Force Base, California, was redesignated Headquarters 1st Strategic Aerospace Division. Redesignation was in consonance with a Headquarters USAF policy that the term "aerospace" could be injected into or substituted for "air" in the names of those organizations significantly engaged in aerospace operations or support thereof. In order to qualify for the new designation, an organization was required to be involved in the operations or support of two or more of the following: air systems, ballistic missile systems, and space vehicle systems.

*Strategic support squadrons discontinued.* SAC's three strategic support squadrons transferred their C-124 aircraft and airlift functions to the Military Air Transport Service and the Air Force Logistics Command and were discontinued in March and June.

## **Operations**

In a nationwide defense budget speech of 28 March, President John F. Kennedy requested an increase in funds to strengthen and protect the strategic deterrent force and to strengthen the ability to wage limited war.

*Fifty percent ground alert.* He called for one-half of SAC's B-52s and B-47s to be placed on 15-minute ground alert. He also directed an accelerated B-47 phase out program in order "to provide promptly the trained crews required for the expanded ground alert." The 50 percent ground alert posture by both bombers and tankers was attained in July.

*Skybolt.* President Kennedy further recommended additional funds for the Skybolt, an air-launched ballistic missile that was being developed to replace the Hound Dog. He observed that successful development and production of the Skybolt would extend the life of SAC's heavy bombers into the missile age. Congress subsequently approved the additional funds for Skybolt.

*Death of the B-70.* President Kennedy cancelled the B-70 Valkyrie, the Mach 3 bomber being developed as a replacement for the B-52. He cited several factors that prompted him to recommend reduction of the B-70 program. These included the high cost of developing the aircraft, its greater vulnerability in the air compared to missiles, and its late projected readiness date

which coincided with the readiness date of intercontinental ballistic missiles. In his opinion, all these factors combined to make the B-70 "unnecessary and economically unjustifiable."

He recommended continuing a B-70 research and development program to explore the problems of flying three times the speed of sound. Following his recommendation, Congress reduced the funds for the B-70 and geared the program to one that involved the production of three XB-70 aircraft with no operational bomber production.

*Thompson Trophy.* On 14 January 1961, another 43d Bomb Wing B-58 broke three of the records made by the aircraft on 12 January. It established new records for a 1,000 kilometer course with payloads of 2,000 kilograms, 1,000 kilograms and no payload, all at 1,284.73 miles an hour. On 28 February, the crew was awarded the Thompson Trophy for 1961. This was the first time in its 31-year history that the trophy was awarded for a record set by a medium bomber. Sponsored by Thompson-Ramo-Wooldridge, Inc., and administered by the Air Foundation, the Thompson Trophy was awarded annually for supremacy in closed course speed flying. Recipients of the award were: Major Harold Confer, pilot; Major Richard Weir, navigator-bombardier; and Captain Howard Bialas, defensive systems operator. All were members of the 43d Bomb Wing, Carswell AFB, Texas.

*Bleriot Cup.* A new record for sustained speed was set by a 43d Bomb Wing B-58 Hustler on 10 May, flying 669.4 miles in 30 minutes and 45 seconds at an average speed of 1,302 miles per hour. The record flight won the



The delta-wing B-58 Hustler was the first supersonic bomber to enter production in the United States. The aircraft lacked sufficient range for SAC missions and was too expensive to maintain in the small numbers procured. The aircraft shown here was the first produced by the Convair Division of General Dynamics.



Aero Club of France's Bleriot Cup, for the pilot of the aircraft, Major Elmer E. Murphy. The trophy was named for Louis Bleriot, the first man to fly across the English Channel.

*Another record, the seventh Mackay Trophy, and tragedy.* The B-58 continued its record-setting pace on 26 May when it flew the 4,612 miles from New York to Paris in 3 hours, 19 minutes, and 41 seconds, thus setting another record. The time was almost one-tenth that taken by Charles Lindbergh in his famous solo flight of 1927. The crew consisted of Major William Payne, pilot; Captain William Polhemus, and Captain Raymond Wagener, all from the 43d Bomb Wing. The crew received the Mackay Trophy for this flight.

On 3 June, this B-58 crashed while participating in the Paris Air Show. All three crew members, those who had participated in the 10 May flight, were killed.

*B-58 record flights.* On 12 January, a SAC B-58 Hustler of the 43d Bomb Wing, piloted by Major Henry J. Deutschendorf, Jr., established six international speed and payload records on a single flight, thus breaking five previous records held by the Soviet Union. Staging out of Edwards AFB, California, the four-jet B-58 flew two laps around a course between Edwards AFB and a point east of Yuma, Arizona. The records were as follows: speed with no payload, 1,200.194 miles per hour; speed with one thousand kilogram payload, 1,200.194 miles per hour; and speed with two thousand kilograms, 1,200.194 miles per hour. The three additional records were set for a 2,000 kilometer run without payload, a 1,000 and a 2,000 kilogram payload—all at 1,061.808 miles per hour.

*First B-52H.* On 9 May, the first B-52H (serial number 60-001) was delivered to the 379th Bomb Wing, Wurtsmith Air Force Base, Michigan. Powered by eight turbofan engines, the B-52H had greater range and climbing power than earlier models. A Gatling gun, capable of firing 20 millimeter cannon rounds at the rate of 4,000 per minute, was a special feature of this aircraft.

*Berlin Crisis and B-47 phase out.* On 25 July, with the U.S. and Russia seemingly headed for a showdown on the Berlin question, President Kennedy delayed his previously directed accelerated B-47 phase out program in order to improve the national defense posture. Six bomb wings and six air refueling squadrons were affected.

*Airborne command post began operations.* Initiated on a trial basis in July 1960, the airborne command post, or Looking Glass as it was later called, began continuous operations on 3 February. "The results of six months of testing have proven conclusively the effectiveness of the airborne command post," declared General Power, SAC Commander.

Airborne command post headquarters were converted KC-135 tankers equipped with the latest and most advanced radio equipment. The command post could communicate with the Joint Chiefs of Staff, any SAC base or any SAC aircraft in the air or on the ground. General officers were to take turns

in commanding the post. Each aircraft flew approximately 8 hours and was replaced by another identically equipped KC-135.

*Airborne alert.* On 18 January 1961, SAC publicly announced that B-52 heavy bombers were conducting airborne alert training. General Power declared that the indoctrination phase of airborne alert training had been completed and all combat ready B-52 bomber crews were participating in airborne alert training missions under realistic conditions. A number of B-52s would be in the air at all times. Approximately 24 bases were involved in the program because of the dispersal of heavy bomber units. More than 6,000 sorties during the previous two years had proved the feasibility of keeping a segment of the SAC bomber fleet in the air at all times.

*SAC designated single manager for KC-135s.* In November, Headquarters USAF established the SAC KC-135 program at 32 squadrons (each 20 UE) or a total authorized strength of 640 aircraft. At the same time, Headquarters USAF designated SAC as the single manager of all KC-135 air refueling operations and as such would provide support for all fighter aircraft assigned to the Tactical Air Command and other major commands.

*BMEWS becomes operational.* On 1 February, the Ballistic Missile Early



Looking like a strange bird with talons extended, a B-58 Hustler is about to touch down during an early test flight. Note the four podded engines mounted directly on the delta wing, and not on pylons as in the B-47 and B-52 designs. The 18-wheel, tricycle landing gear was required because the thin wing structure could not accommodate a conventional gear system with larger wheels. The proposed Martin B-68—cancelled in 1957—was also a delta-wing bomber.

Warning System (BMEWS) site at Thule Air Base, Greenland, became operational. Subsequently, BMEWS sites began operations at Clear, Alaska, and Fylingdales in the United Kingdom. Operated by the North American Air Defense Command (NORAD), BMEWS provided a means of detecting and warning SAC of an impending intercontinental ballistic missile attack in sufficient time to allow aircraft to be launched before the missiles reached U.S. bases. It also provided SAC with valuable time in which to prepare its own missile force for launch.

## **Bombing Competition**

Following the basic ground rules established in 1960, each numbered air force held a preliminary contest to determine who would participate in the SAC-wide competition, which was held at Fairchild Air Force Base, Washington, from 16 through 22 September. Participants included 12 bomb wings (six B-52 and six B-47) and 12 air refueling squadrons (six KC-135s and six KC-97s). The two B-58 wings were too deeply in training to participate in the competition. Each KC-97 squadron sent four crews to team as pairs in accomplishing refueling (two tankers to one receiver) of both B-47s and B-52s; the other units entered two crews each. The 4137th Strategic Wing, a B-52 unit of the Eighth Air Force, received the Fairchild Trophy for having the highest score in the combined categories of alert exercise, bombing, navigation, electronic countermeasures, air refueling, pilot techniques, and munitions loading. The 915th Air Refueling Squadron, a KC-135 unit of the Eighth Air Force, won the Saunders Trophy.

## **Missiles**

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base and the U.S. Naval Missile Facility, Point Arguello, California. All SAC launches were from Vandenberg: Launched by: SAC—2: Other Agencies—38.

*SAC MIKE discontinued.* Effective 1 July 1961, the Office of Assistant CINCSAC (SAC MIKE) was discontinued. Replaced by a smaller office, SAC Representative (Aerospace), SAC MIKE had been gradually phased down and its duties appropriated by the Headquarters SAC staff. Functions of the new office included providing SAC representation to configuration control boards, advising respective BSD program offices and providing information to Headquarters SAC staff agencies on technical knowledge and understanding of the design and operational aspects of strategic missile systems.

*Snark phased out.* In his special defense budget message of 28 March, President Kennedy directed that the Snark missile be phased out as it was "obsolete and of marginal military value. . . ." On 25 June, less than four months after it had been declared operational, the 702d Strategic Missile Wing was inactivated at Presque Isle Air Force Base, Maine.

*Mobile Minuteman cancelled.* President Kennedy also deferred further action on the development of the Mobile Minuteman concept in favor of addi-

tional hardened Minuteman sites, and on 7 December, Secretary of Defense Robert S. McNamara cancelled the entire Mobile Minuteman program.

*Titan II program cut.* In his 28 March speech, President Kennedy also announced that two Titan II squadrons that had been programmed for SAC would be cancelled.

*Atlas D program completed.* On 30 March, the Atlas D program was completed when the fourth squadron, which was located at Offutt Air Force Base, Nebraska, was fully equipped and its last three sites at Arlington and Mead, Nebraska, and Missouri Valley, Iowa, were turned over to SAC.

*First Minuteman wing activated.* Effective 15 July, SAC's first Minuteman wing, the 341st Strategic Missile Wing, was activated at Malmstrom Air Force Base, Montana, and on 1 December, the 10th Strategic Missile Squadron was activated and assigned to this wing.

*First Titan I launch from Vandenberg.* On 3 May, an Air Force Systems Command crew launched the first Titan I from Vandenberg Air Force Base, California. Previous launches, some successful and others unsuccessful, had been made by Air Force Systems Command from Cape Canaveral, Florida.

*Atlas E Program Completed.* SAC accepted its entire Atlas E force, three squadrons, from the Air Force Systems Command in 1961. The 566th Strategic Missile Squadron, located at Francis E. Warren Air Force Base, Wyoming, was the last one to be accepted—on 20 November. The other Atlas E squadrons were located at Fairchild Air Force Base, Washington and Forbes Air Force Base, Kansas.

*The Future of SAC Secretary McNamara.* On 11 December, less than a year after he became Secretary of Defense, Robert S. McNamara issued a prophetic statement on the future of the Strategic Air Command:

The introduction of ballistic missiles is already exerting a major impact on the size, composition, and deployment of the manned bomber force, and this impact will become greater in the years ahead. As the number of . . . ballistic missiles increases, requirements for strategic aircraft will be gradually reduced. Simultaneously, the growing enemy missile capability will make grounded aircraft more vulnerable to sudden attack, and further readiness measures will have to be taken to increase the survivability rate of the strategic bomber force.

## Resources

<i>Personnel</i>	282,723 (38,542 officers, 217,650 airmen, 26,531 civilians)*
<i>Tactical Aircraft</i>	2,759 (639 B-52, 880 B-47, 100 EB-47, 5 EB-47L, 41 RB-47, 76 B/TB-58, 515 KC-135, 503 KC-97)
<i>Aircraft Units</i>	<p>11 Heavy Bomb Wings (one 45 UE, two 30 UE, and eight 15 UE) with B-52s</p> <p>22 Heavy Strategic Wings (15 UE) with B-52s</p> <p>Three Heavy Strategic Aerospace Wings (one 45 UE and two 15 UE) with B-52s</p> <p>17 Medium Bomb Wings, 15 (45 UE) with B-47s and two (40 UE) with B-58s</p> <p>Three Medium Strategic Aerospace Wings (45 UE) with B-47s</p> <p>One Medium Strategic Reconnaissance Wing (45 UE) with RB-47s</p> <p>One B-47 Combat Crew Training Wing (45 UE)</p> <p>Four Support Squadrons (9 UE) partially equipped with EB-47Ls</p> <p>33 Heavy Tanker Squadrons (12 20 UE, 13 15 UE, and eight 10 UE) with KC-135s</p> <p>24 Medium Tanker Squadrons (20 UE) with KC-97s</p> <p>One Light Strategic Reconnaissance Wing with U-2s</p>
<i>Missiles</i>	30 Atlas D, 32 Atlas E, 80 Atlas F, 62 Titan I, 20 Minuteman, 547 Hound Dog, and 436 Quail
<i>Missile Units</i>	<p>Four Atlas D Squadrons (two 9 UE and two six UE, including the Vandenberg squadron which had all three models of Atlas missiles assigned) fully equipped</p> <p>Three Atlas E Squadrons (9 UE) fully equipped</p> <p>Six Atlas F Squadrons (12 UE) fully equipped</p> <p>Six Titan I Squadrons (9 UE) fully equipped</p> <p>Six Titan II Squadrons (9 UE) with no missiles assigned</p> <p>Eight Minuteman Squadrons (50 UE) one of which was partially equipped</p>

\*Highest number of personnel in SAC history.



### *Active Bases*

43 CONUS; 14 overseas (Puerto Rico, United Kingdom, French Morocco, Spain, Labrador, Newfoundland, Canada, Guam)

### **Budget and Financial Status (FY 62, as of 30 June 1962)**

<i>Operations and Maintenance</i>	\$750,958,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL)
<i>Assets</i>	\$17,934,650,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,949,864,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

### **Organization**

In line with the Headquarters USAF policy to use the term "aerospace" in the official title of organizations employing two or more air, ballistic missile, or space systems, SAC began redesignating those air divisions and bomb wings that directed the operations of both aircraft and ballistic missile units. The first redesignations were effected on 15 February, at which time four air divisions (the 17th, 18th, 21st, and 821st) became "strategic aerospace divisions" and the 92d Bombardment Wing, Heavy, became the 92d Strategic Aerospace Wing. Subsequently, the term was applied to other air divisions and bomb wings.

### **Operations**

*Cuban Missile Crisis.* The Russian buildup of offensive missiles in Cuba began influencing SAC operations several days before President Kennedy revealed the exact nature of the threat to the American people. In response to a Joint Chiefs of Staff directive, a SAC U-2 reconnaissance plane, piloted by Major Richard S. Heyser, flew over Cuba on 14 October and obtained the first photographs of Soviet intermediate range ballistic missiles being installed there. Further evidence of the missile buildup was gathered during the following days as the high altitude air surveillance mission assigned to the 4080th Strategic Wing, the U-2 unit, was greatly intensified by the President.

On 22 October, President Kennedy announced the arms quarantine against shipments destined for Cuba and demanded the removal of missiles already situated there. On the same day SAC further intensified its readiness posture: Battle staffs were placed on 24-hour alert duty, leaves were cancelled, and personnel recalled to duty. B-47s were dispersed to several widely separated and pre-selected civilian and military airfields, additional bombers and tankers were placed on ground alert, and the B-52 airborne alert indoctrination program was immediately expanded into an actual airborne alert involving 24-

hour flights and immediate replacement of every aircraft that landed. The ICBM force, numbering some 200 operational missiles, was brought into alert configuration.

On 25 October, with the arms quarantine in effect, SAC RB-47s and KC-97s joined other forces in the gigantic sea-search for Soviet ships bound for Cuba. On 27 October, an RB-47 of the 55th Strategic Reconnaissance Wing, which was engaged in this sea-search mission, crashed on takeoff at Kindley Air Force Base, Bermuda. All four crew members were killed. On the same day, Major Rudolph Anderson, Jr., a member of the 4080th Strategic Wing, was killed when his U-2 aircraft was shot down by an anti-aircraft missile while performing a reconnaissance mission over Cuba. The Distinguished Service Medal was awarded posthumously to Major Anderson.

The first major break in the crisis came on 28 October. The Soviet Union agreed to remove offensive missiles from Cuba, subject to verification by the United Nations. Throughout the next few days, SAC aircraft maintained close aerial surveillance while the missiles were dismantled, loaded on ships, and sent back through the quarantine to Russia.

On 20 November, when the Soviet leadership agreed to remove medium bombers from Cuba, the quarantine was lifted and SAC began shifting back to normal operations. Medium bombers returned to their home bases, the ground alert force dropped back to the normal 50 percent standard, and routine B-52 airborne alert indoctrination flights began once more.

While visiting Homestead Air Force Base, Florida, on 26 November, President Kennedy presented the Air Force Outstanding Unit Award to the 4080th Strategic Wing for its vital reconnaissance missions over Cuba.

On 7 December, President Kennedy visited Headquarters SAC, toured the underground command post and presented General Power with a unique plaque citing SAC's extraordinary role and safety record in the Cuban crisis. The citation read: "For outstanding record in flight safety during airborne alert in the Cuban emergency, 22 Oct—21 Nov 62."

*Delivery of Last B-52.* On 26 October, SAC received its last B-52, an "H" model serial number 61-040, which was assigned to the 4136th Strategic Wing, Minot Air Force Base, North Dakota.

*Last B-58.* On 26 October, SAC received its last three B-58s (serial numbers 61-2078, 61-2079, and 61-2080), which were assigned to the 305th Bomb Wing, Bunker Hill Air Force Base, Indiana.

*SAC Bomber Production Ends.* With the delivery of the last B-52 and the last B-58, for the first time since 1946 there was no bomber being produced or developed for the Strategic Air Command. The XB-70 was the only bomber-type aircraft under development and it had been excluded from consideration as a bomber. In September, an Air Force recommendation to expand the XB-70 program into a full-scale weapon system development was rejected by the Department of Defense.

*Follow-on Bomber.* On 30 October, Secretary of Defense McNamara requested the Air Force "consider an alternative bombing system" as a follow-on

to the B-52, something that could serve as an airborne missile launching platform for the period beyond 1970.

*Death of the Skybolt.* On 7 December, President Kennedy confirmed reports that his Administration planned to curtail development of the Skybolt, an air-to-surface ballistic missile being developed to replace the Hound Dog on the B-52 and to be used on the Royal Air Force's Vulcan bombers. He further announced that the final decision would not be made until after he and British Prime Minister Macmillan met and discussed the matter in Nassau, Bahamas. On 21 December, upon completion of their discussions, President Kennedy and Prime Minister Macmillan issued a joint statement which confirmed the decision to cancel the Skybolt.

According to Secretary of Defense McNamara, the Skybolt "... turned out to be considerably more expensive to develop and produce than had been anticipated ... it was overtaken by the successful development of other weapons that could carry out the task of suppressing enemy defenses at substantially lower cost ... lost its status as a vital defense requirement ..."

*B-52 Record Flights, Operation Persian Rug.* On 10-11 January, a B-52H (serial number 60-0040) of the 4136th Strategic Wing, Minot Air Force Base, North Dakota, completed a record-breaking 12,532.28-mile unrefueled flight from Kadena Air Base, Okinawa, to Torrejon Air Base, Spain. This flight broke the old "distance in a straight line" world record of 11,235.6 miles held by the U.S. Navy's propeller-driven "Truculent Turtle." The entire crew, commanded by Major Clyde P. Evely, received Distinguished Flying Crosses. The Stratofortress weighed exactly 488,000 pounds (244 tons) at takeoff. It flew at altitudes from 40,000 to 50,000 feet with a top speed of 662 miles per hour on the Kadena-Torrejon flight route.

A B-52H of the 19th Bomb Wing, Homestead Air Force Base, Florida, broke the world record for distance in a closed course without landing or refueling on 7 June. The closed course began and ended at Seymour Johnson Air Force Base, North Carolina, with a validated distance of 11,336.92 miles. The old record of 10,078.84 miles had been held by a B-52G of the 5th Bomb Wing since 1960.

*B-58 Record Flight, the Eighth Mackay Trophy, and the First Bendix Trophy, Operation Heat Rise.* On 5 March, a 43d Bomb Wing B-58 (serial number 59-2458), piloted by Captain Robert G. Sowers, broke three speed records in a round-trip flight between New York and Los Angeles. The Hustler made the trip in four hours, 41 minutes, and 14.98 seconds while averaging 1,044.46 miles per hour. Three inflight refuelings by KC-135s were required. On its New York to Los Angeles leg, which took two hours, 15 minutes, and 50.8 seconds, the B-58 beat the sun across the United States, averaging 1,081.8 miles per hour. The most impressive part of the flight was that from Los Angeles to New York: two hours and 58.71 seconds at an average speed of 1,214.65 miles per hour.

For this flight, the crew received the Mackay Trophy, the Bendix Trophy, Distinguished Flying Crosses, and congratulations from President Kennedy.

*Expansion of the Post Attack Command Control System.* SAC's Post Attack Command Control System (PACCS) was expanded to include three auxiliary airborne command posts and four support squadrons. In April, auxiliary airborne command posts were established at those three bases that supported numbered air force headquarters—Barksdale Air Force Base, Louisiana; Westover Air Force Base, Massachusetts; and March Air Force Base, California. These auxiliary airborne command posts were modified to carry communications equipment in much the same manner as the Looking Glass aircraft, the SAC airborne command post that had been in continuous operation since February 1961. On 20 July, as a further extension of PACCS, SAC organized support squadrons at four strategic locations—Mountain Home Air Force Base, Idaho; Lincoln Air Force Base, Nebraska; Lockbourne Air Force Base, Ohio; and Plattsburgh Air Force Base, New York. These units were later equipped with EB-47L aircraft, B-47s modified with communications equipment, and redesignated Post Attack Command Control Squadrons.

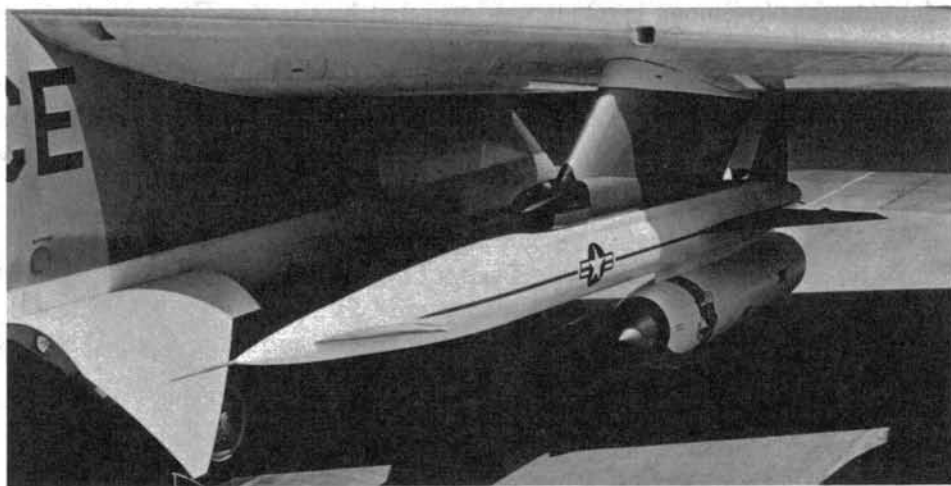
### **Bombing Competition**

Not held due to Cuban Crisis and increased operational commitments.

### **Missiles**

*Missile Launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base and the Naval Missile Facility, Point Arguello, California. All SAC launches were from Vandenberg: Launched by: SAC—15; Other Agencies—64.

*Titan I Operational.* On 20 January, the first Titan I launch to be conducted by a SAC crew was accomplished at Vandenberg. On 20 April and



A GAM-77 Hound Dog air-to-surface missile is shown in a test configuration under the wing of a B-29 bomber. Each B-52 could carry two of these stand-off missiles. The thrust of the missile's turbojet engine could be used to augment the bomber's engines during takeoff and in flight, with the missile being refueled from bomber fuel tanks before being released. Note the SAC markings on the Hound Dog's engine nacelle.

10 May, the first two Titan I squadrons became operational at Lowry Air Force Base, Colorado, both being assigned to the 703d Strategic Missile Wing.

*Atlas F Operational.* SAC's six Atlas F squadrons became operational between September and December 1962. The first squadron, the 550th Strategic Missile Squadron at Schilling Air Force Base, Kansas, became operational on 9 September. The last squadron to be accepted was the 556th Strategic Missile Squadron, located at Plattsburgh Air Force Base, New York, the only ICBM base east of the Mississippi River. It became operational on 20 December.

*First Minuteman I Launch by SAC.* On 28 September, the first Minuteman I to be launched by a SAC crew was accomplished at Vandenberg.

*First Minuteman I Operational.* The Minuteman program proceeded on schedule, with the first two Minuteman flights of 10 missiles each becoming operational at Malmstrom Air Force Base, Montana, in November. Addition of these 20 operational Minuteman missiles brought the total SAC ICBM force to 200.

*Minuteman Educational Program.* Under Minuteman alert conditions, combat crews were subjected to long hours of duty in remote, isolated underground launch control centers. The atmosphere was not conducive to developing and maintaining high morale. This was especially true since there was from four to eight hours in each 24 hour tour that was spare time, time during which individual crew members did not have to perform functions directly associated with maintaining the alert missiles.

In order to improve morale by detracting from the boredom associated with the inactivity of crew members and at the same time to attract and retain qualified officers for missile crews, SAC initiated a graduate college program for its Minuteman crews. The school began at Malmstrom Air Force Base, Montana, in November 1962. It was operated by the Air Force Institute of Technology.

*Last Jupiter Squadron Deployed to Turkey.* On 25 May, the 866th Technical Training Squadron was inactivated at Redstone Arsenal, Huntsville, Alabama. Inactivation of this Jupiter training squadron had been made possible by the deployment of the third Jupiter squadron to Turkey in late 1961.



## Resources

<i>Personnel</i>	271,672 (36,206 officers, 211,482 airmen, 23,984 civilians)
<i>Tactical Aircraft</i>	2,424 (636 B-52, 613 B-47, 94 EB-47, 40 RB-47, 36 EB-47L, 86 B/TB-58, 613 EC/KC-135, 306 KC-97)
<i>Aircraft Units</i>	<p>32 Heavy Bomb Wings (29 15 UE and three 30 UE) with B-52s</p> <p>Six Heavy Strategic Aerospace Wings (five 15 UE and one 30 UE) with B-52s</p> <p>Ten Medium Bomb Wings (45 UE) and two Medium Strategic Aerospace Wings (45 UE) with B-47s</p> <p>One Medium Strategic Reconnaissance Wing (30 UE) with RB-47s</p> <p>Four Support Squadrons (three 10 UE and one 6 UE) with EB-47Ls</p> <p>Two Medium Bomb Wings (40 UE) with B-58s</p> <p>41 Heavy Air Refueling Squadrons (12 10 UE, 11 with KC-135s and one with no aircraft assigned; 23 15 UE, 21 with KC-135s, one partially equipped, and one with no aircraft assigned; and six 20 UE equipped with KC-135s)</p> <p>Fourteen Medium Air Refueling Squadrons (20 UE) with KC-97s</p> <p>One Light Strategic Reconnaissance Wing with U-2s</p>
<i>Missiles</i>	28 Atlas D, 33 Atlas E, 79 Atlas F, 63 Titan I, 56 Titan II, 372 Minuteman, 593 Hound Dog, 492 Quail
<i>Missile Units</i>	<p>Four Atlas D Squadrons (two 9 UE and two 6 UE, including the Vandenberg squadron with all three types of Atlas missiles assigned) fully equipped</p> <p>Three Atlas E Squadrons (9 UE) fully equipped</p> <p>Six Atlas F Squadrons (12 UE) fully equipped</p> <p>Six Titan I Squadrons (9 UE) fully equipped</p> <p>Six Titan II Squadrons (9 UE) fully equipped</p> <p>Thirteen Minuteman Squadrons (50 UE), six fully</p>

equipped, two partially equipped, and five with no missiles assigned

*Active Bases* 43 CONUS; 10 overseas (Puerto Rico, United Kingdom, Spain, Guam, Labrador, Newfoundland, and Canada).

### **Budget and Financial Status (FY 63, as of 30 June 1963)**

<i>Operations and Maintenance</i>	\$723,017,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil, and lubricants (POL)
<i>Assets</i>	\$19,243,729,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$2,020,428,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

### **Organization**

When the B-52 dispersal began in the late 1950s, the new units created to support this program were named strategic wings and given four-digit designations (e.g., 4137th Strategic Wing). Under the USAF organization and lineage system, these four-digit units fell into the MAJCOM (major air command controlled) category and their lineage (histories, awards, and battle honors) ended with their discontinuation and could never be revived. By contrast, AFCON (Headquarters USAF controlled) units, which were readily distinguishable by having one, two, or three-digit designations, could go through a series of inactivations and activations and still retain their lineage.

In order to retain the lineage of the combat units and to perpetuate the lineage of many currently inactive units with World War II records, Headquarters SAC received authority from Headquarters USAF to discontinue its strategic wings that were equipped with combat aircraft and to activate AFCON units, most of which were inactive at the time.

The reorganization process, which extended from 1 January through 1 September, was applied to 22 B-52 strategic wings, three air refueling wings, and the 4321st Strategic Wing at Offutt Air Force Base, Nebraska. These units were discontinued and two and three-digit AFCON units were activated. In most cases, the bombardment squadrons that had been assigned to the strategic wings were inactivated and bombardment squadrons that had previously been assigned to the newly-activated wings were activated. While these actions were almost tantamount to redesignations, they were not official redesignations. Therefore, the records, awards and achievements of the strategic wings could not be inherited by the bomb wings.

*Numbered air force realignment.* On 1 July, SAC reorganized its three numbered air forces in the United States. This realignment was effected primarily to correct an imbalance in the assignment of missiles. Due to restrictive geological factors in the Eastern part of the United States, the Eighth Air

Force's role in the SAC ICBM program had been limited to one squadron of Atlas F missiles at Plattsburgh Air Force Base, New York. With additional B-47 and KC-97 units of the Eighth Air Force scheduled to be inactivated in the following years, the imbalance of forces among the three numbered air forces would be accentuated.

Completely disregarding whatever influence geographical factors may have had upon a numbered air force's area of responsibility, SAC directed that its three numbered air forces be realigned on 1 July, an action which overnight plunged the Eighth Air Force into an operational ICBM environment in the Midwestern and Rocky Mountain regions of the United States. From the Fifteenth, the Eighth acquired a tenant Titan I wing at Lowry Air Force Base, Colorado, and Francis E. Warren Air Force Base, Wyoming, with an operational Atlas wing. With the acquisition of F. E. Warren, a Minuteman wing was activated there. From the Second Air Force, the Eighth acquired a Titan II wing, which would begin receiving missiles shortly thereafter at McConnell Air Force Base, Kansas, and Whiteman Air Base, Missouri, together with its embryonic Minuteman wing.

## Operations

*B-58 Record Flight.* On 16 October, in Operation Greased Lightning, a B-58 (serial number 61-2059) of the 305th Bomb Wing, Bunker Hill Air Force Base, Indiana, set an official world speed record in flying 8,028 miles from Tokyo to London in an elapsed time of eight hours, 35 minutes, and 20.4 seconds, averaging about 938 mph. This supersonic Hustler, piloted by Major Sidney J. Kubesch, took off from Kadena Air Base, Okinawa, and flew over Japan, Alaska, Northern Canada, Greenland, Iceland, and London before landing at Greenham Common RAF Station. Five inflight refuelings were provided by KC-135s. The aircraft also established speed records from Tokyo to Anchorage, Alaska—three hours, nine minutes, and 41.8 seconds, averaging 1,093.44 mph—and Anchorage to London—five hours, 24 minutes, and 54 seconds, averaging 826.91 mph.

*SAC support of TAC.* Operating under the single manager tanker concept, SAC KC-135s flew over 1,000 sorties in support of routine Tactical Air Command fighter training in 1963. In addition, more than 250 tankers were used to support various overseas deployments of TAC fighters. The largest movement of fighters was conducted as part of Operation Big Lift in October. Directed by Secretary of Defense McNamara, Operation Big Lift involved flying an entire armored division, some 15,000 men, from the United States to Europe and to have them ready to participate in NATO maneuvers within five days. A composite strike force of 115 aircraft accompanied this move to provide close air support for the exercise. Inflight refueling for 71 TAC fighter and reconnaissance aircraft assigned to this composite strike force was provided by approximately 50 KC-135s staging out of Loring and Dow Air Force Bases, Maine.

*Medium aircraft phase out.* During 1963, SAC continued to undergo transi-

tion from a manned aircraft force to a mixed aircraft and missile force. As intercontinental ballistic missiles became more numerous, the B-47s were phased out. By the end of December, only 12 B-47 wings, two of which were outfitted with highly sophisticated electronic countermeasures (ECM) equipment, remained in the combat inventory. Six B-47 wings were disposed of during the year. At the same time seven medium air refueling squadrons phased out their KC-97s and were either inactivated or equipped with KC-135s.

With the reduction of medium bombers, SAC began realigning its overseas Reflex forces. In July, B-47 Reflex operations ceased at the French Moroccan bases of Nouasseur, Benguerir, and Sidi Slimane and were thereafter concentrated at the three Spanish bases of Moron, Torrejon, and Zaragoza and in the United Kingdom at Brize Norton, Fairford, Greenham Common, and Upper Heyford. Medium bomber Reflex operations continued at Elmendorf Air Force Base, Alaska, while Air Mail operations, a variation of Reflex, continued at Anderson Air Force Base, Guam.

With the rapidly diminishing KC-97 force, fewer overseas support bases were required and SAC withdrew its tankers from Kindley Air Force Base, Bermuda, and Churchill, Cold Lake, and Frobisher Royal Canadian Air Force Stations, Canada. Ground alert forces of KC-97s remained at Namao Royal Canadian Air Force Station, Canada; Goose Air Base, Labrador; Ernest Harmon Air Force Base, Newfoundland; and Sondrestrom Air Base, Greenland.

## **Bombing Competition**

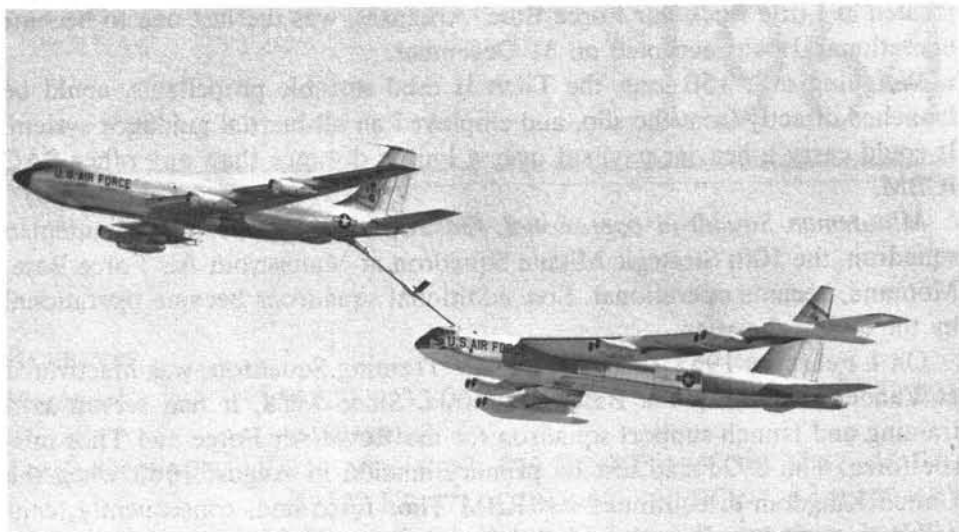
Not held due to increased operational commitments and cost reduction programs.

*Disposition of Fairchild and Saunders Trophies.* General Power decided to award the Fairchild and Saunders Trophies to the bomb wing and air refueling squadron with the best overall combat capability record for Fiscal Year 1963. A special board of officers, composed of the deputy commanders of the Second, Eighth, and Fifteenth Air Forces, reviewed the records and selected the winners—Second Air Force's 2d Bomb Wing won the Fairchild Trophy and the Second's 46th Air Refueling Squadron won the Saunders Trophy.

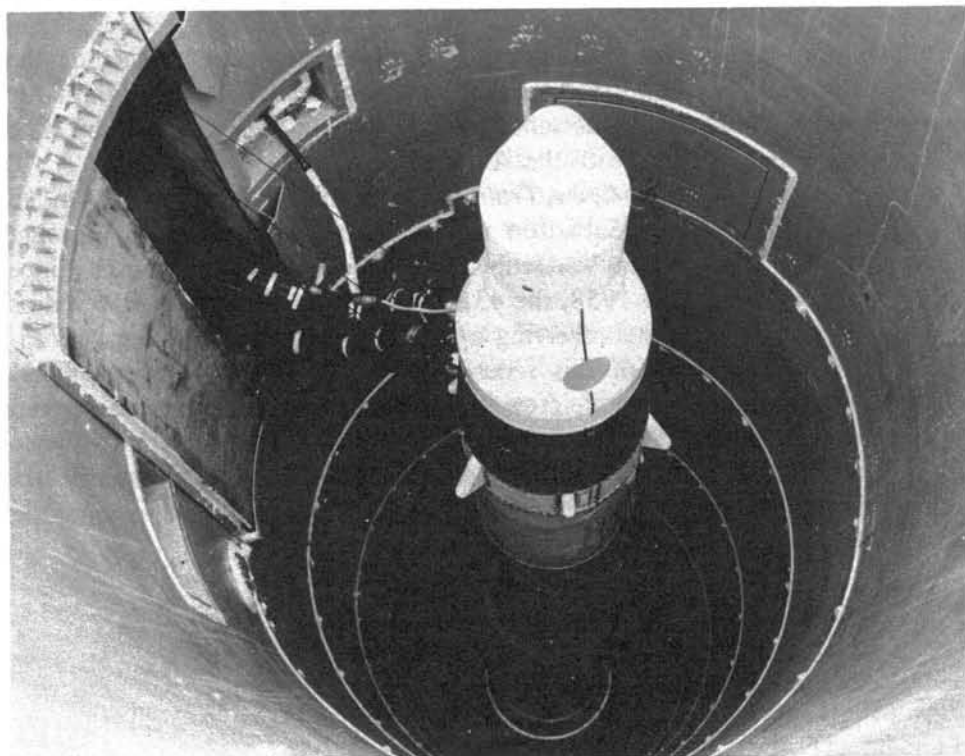
## **Missiles**

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base and the U.S. Naval Missile Facility, Point Arguello, California. All SAC launches were from Vandenberg: Launched by: SAC—45; Other Agencies—71.

*Titan II operational.* On 23 September, for the first time, a SAC crew launched a Titan II from Vandenberg Air Force Base, California. The entire Titan II force of six squadrons began operating in 1963. The first was the 570th Strategic Missile Squadron at Davis-Monthan Air Force Base, Arizona. It was accepted by SAC on 8 June. The 374th Strategic Missile Squadron,



The need to refuel jet-propelled bombers at high speeds and high altitudes led to development of the KC-135 Stratotanker, shown here fueling a B-52D. The KC-135, derived from the commercial Boeing 707, is still in service and "tanks" fighter, attack, and transport aircraft as well as bombers.



A Minuteman ICBM is checked out and readied for firing from a test silo at Cape Canaveral (later Cape Kennedy). Note the umbilical cables connected to the missile. Although SAC has had Minuteman missiles deployed since the early 1960s, the current weapons are several generations removed from the first ICBMs with that name.



located at Little Rock Air Force Base, Arkansas, was the last one to become operational. It was accepted on 31 December.

Weighing over 150 tons, the Titan II used storable propellants, could be launched directly from the silo, and employed an all-inertial guidance system. It could carry a heavier payload over a longer distance than any other SAC ICBM.

*Minuteman Squadron operational.* On 28 February, the first Minuteman squadron, the 10th Strategic Missile Squadron at Malmstrom Air Force Base, Montana, became operational. Five additional squadrons became operational by the end of the year.

On 1 February 1963, the 392d Missile Training Squadron, was inactivated at Vandenberg Air Force Base, California. Since 1958, it had served as a training and launch support squadron for the Royal Air Force and Thor missile force. The 392d had lost its primary mission in August 1962 when the United Kingdom discontinued its IRBM Thor force and, consequently, cancelled its combat training launches at Vandenberg.

*Phase Out of the Thor.* SAC responsibilities for the Thor program in the United Kingdom ended on 20 December, at which time the system was completely phased out by the Royal Air Force.

*Minuteman Educational Program Expanded.* Inaugurated at Malmstrom Air Force Base, Montana, in November 1962, the Minuteman Educational Program soon proved successful. In 1963, it was expanded to include the Minuteman crews at Ellsworth Air Force Base, South Dakota, and Minot Air Force Base, North Dakota. The schools at these bases were operated by state universities under contract with the Air Force Institute of Technology.

*Organization of Combat Crew Training Squadron at Vandenberg.* On 15 May, the 4315th Student Squadron was redesignated the 4315th Combat Crew Training Squadron at Vandenberg Air Force Base, California. Since its organization on 1 May 1958, the 4315th Student Squadron had served as a holding unit for personnel receiving operational readiness training at Vandenberg. Concurrently with this redesignation, the 4315th Combat Crew Training Squadron absorbed the crew training functions previously performed by Vandenberg's three ICBM squadrons—the 576th (Atlas), 394th (Minuteman) and 395th (Titan). These three squadrons then became primarily responsible for operating the launch facilities at Vandenberg and supporting the missiles launched from there.

## Resources

<i>Personnel</i>	259,871 (35,035 officers, 201,933 airmen, 22,903 civilians)
<i>Tactical Aircraft</i>	2,075 (626 B-52, 679 EC/KC-135, 391 B-47, 46 EB-47, 22 EB-47L, 27 RB-47, 190 KC-97, 94 B/TB-58)
<i>Aircraft Units</i>	<p>32 Heavy Bomb Wings (29 15 UE and three 30 UE) and six Heavy Strategic Aerospace Wings (five 15 UE and one 30 UE) with B-52s</p> <p>Four Medium Bomb Wings (45 UE) and four Medium Strategic Aerospace Wings (45 UE) with B-47s</p> <p>Two Medium Bomb Wings (40 UE) with B-58s</p> <p>One Medium Strategic Reconnaissance Wing (30 UE) with RB-47s</p> <p>Two Post Attack Command Control Squadrons (one 10 UE and one 12 UE) with EB-47Ls</p> <p>44 Heavy Air Refueling Squadrons (five 20 UE, 27 15 UE, 12 10 UE) with EC/KC-135s</p> <p>Nine Medium Air Refueling Squadrons (20 UE) with KC-97s</p> <p>One Light Strategic Reconnaissance Wing with U-2s</p>
<i>Missiles</i>	13 Atlas D, 30 Atlas E, 75 Atlas F, 56 Titan I, 59 Titan II, 142 Minuteman A, 556 Minuteman B, 566 Hound Dog, 477 Quail
<i>Missile Units</i>	<p>Three Atlas E. Squadrons (9 UE) equipped</p> <p>Six Atlas F Squadrons (12 UE) equipped</p> <p>One Atlas D Squadron (the 576th at Vandenberg, which was no longer operational)</p> <p>Six Titan I Squadrons (9 UE) equipped</p> <p>Six Titan II Squadrons (9 UE) equipped</p> <p>16 Minuteman Squadrons (50 UE), 14 equipped</p> <p>The 341st SMW's three squadrons were equipped with 142 Minuteman A and eight Minuteman B. The other 11 squadrons were equipped with Minuteman B</p>
<i>Active Bases</i>	43 CONUS; eight overseas (Puerto Rico, Spain, United Kingdom, Guam, Labrador, and Newfoundland)

## **Budget and Financial Status** **(FY 64 as of 30 June 1964)**

<i>Operations and Maintenance</i>	\$737,370,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil and lubricants (POL)
<i>Assets</i>	\$21,084,000,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$2,033,000,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

## **Operations**

*Development of SR-71.* On 24 July, President Johnson announced the successful development of a new manned aircraft, the SR-71, which would be produced for the Strategic Air Command shortly after flight testing in early 1965. According to the President, "the SR-71 aircraft reconnaissance system is the most advanced in the world."

*B-47 phase out.* In line with Secretary of Defense McNamara's objective to dispose of all B-47s and KC-97s by the end of Fiscal Year 1966, four medium bomb wings and five medium air refueling squadrons disposed of their aircraft in 1964.

Reflex operations declined along with the phase out of B-47s and KC-97s. In April and May B-47s stopped Reflexing to Fairford and Greenham Common RAF Stations in England, and Zaragoza Air Base in Spain. The composition of the ground alert force at Anderson Air Force Base, Guam, changed in April when B-47s were replaced by B-52s. At the end of the year, only five bases continued to support B-47 Reflex forces. They were Moron and Torrejon Air Bases, Spain, Brize Norton and Upper Heyford RAF Stations, United Kingdom, and Elmendorf Air Force Base, Alaska.

In June, Sondrestrom Air Base, Greenland, and Namao RCAF Station, Canada, ceased to support KC-97 operations. In October, the Reflex force at Goose Air Base, Labrador, was switched from KC-97s to KC-135s. At the end of the year, Ernest Harmon Air Force Base, Newfoundland, was the only overseas base still supporting KC-97s.

*ICBM alert force equals bomber alert force.* On 21 April, the number of ICBMs on alert equaled the number of bombers on ground alert. From that day on, the ICBM alert force would outnumber the bomber alert force.

*Future of the manned bomber.* In 1964, with the B-47 force gradually committed to the storage facility at Davis-Monthan Air Force Base, Arizona, and the B-52 production having been completed since 1962, there was still no firm plan for a replacement bomber. According to Secretary of Defense McNamara, "various options are open for replacing the B-52s in the seventies, if a replacement requirement exists at that time. In case supersonic speed and high altitude are needed for the future strategic bomber, the experience gained

from three different Mach 3 planes, currently in the research and development stage, will be available—the XB-70, the A-11, and the SR-71.”

“In case low-level penetration capabilities turn out to be the key to future bomber effectiveness, the lessons being learned from the F-111, for example, will be applicable. . . . the fiscal year 1965 budget includes funds for a special study on an Advanced Manned Strategic Aircraft (AMSA), a long-range, low altitude penetrator to serve as an airborne missile platform.”

*SAC tankers first used to support combat operations.* On 9 June, SAC tankers were used for the first time to support combat operations in Southeast Asia. Four KC-135s, operating out of Clark Air Base in the Philippines and nicknamed Yankee Team Tanker Task Force, refueled eight F-100 fighters on their way to strike communist-backed Pathet Lao anti-aircraft emplacements on the Plain of Jars in northern Laos. The tankers loitered over southern Laos until the strike was over. They then refueled two of the fighters before returning to Clark. They remained at Clark until mid-June when the Joint Chiefs of Staff directed them to return to Anderson Air Force Base, Guam, where they rejoined the main body of a larger tanker task force supporting routine Tactical Air Command deployments.

On 5 August, the Joint Chiefs of Staff reestablished the Yankee Team Tanker Task Force at Clark. Consisting of eight KC-135s and renamed Foreign Legion on 3 September, this force began supporting Pacific Air Forces (PACAF) fighters engaged in combat on 28 September.

*Alaska earthquake.* On 28 March, Headquarters USAF directed SAC to undertake a special aerial reconnaissance mission of the Alaska earthquake which had occurred on the previous evening. Two B-58s of the 43d Bomb Wing, Carswell Air Force Base, Texas, were given a priority assignment to conduct low-level photography over the quake area. Within two hours after being notified, the two aircraft had their special camera pods loaded and were on their way. Approximately 14½ hours after receiving the assignment, these aircraft had completed it, having flown a round trip flight of 5,751 miles, and the processed photographs of the quake were available in Washington, D.C. On the same day, SAC sent three U-2s and two RB-47s to photograph the area from high altitudes; and on the following day, two more 43d Bomb Wing B-58s flew the low-level mission again.

*The Daedalian Trophy.* With its 1964 aircraft accident rate being the lowest in USAF, the Strategic Air Command was named recipient of the Daedalian Trophy.

## **Bombing Competition**

Not held due to continued emphasis upon cost reduction and increased SAC tanker support for TAC activities in Southeast Asia.

*Disposition of Fairchild and Saunders Trophies.* Continuing the program established in 1963, the Fairchild Trophy was awarded to the Second Air Force's 70th Bomb Wing and the Saunders Trophy was awarded to the

Eighth Air Force's 42d Air Refueling Squadron on the basis of their overall operational records for FY 1964.

## Missiles

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base. Included for the first six months of the year are those launches emanating from the U.S. Naval Missile Facility, Point Arguello, California. Effective 1 July, this 19,000 acre facility was transferred to SAC and became part of Vandenberg Air Force Base: Launched by: SAC—69; Other Agencies—50.

*Phase out of Atlas D missiles.* In 1964, the SAC ICBM program reflected the Department of Defense's 1961 decision to place major reliance upon solid-fueled (Minuteman) rather than liquid-fueled or first generation missiles with the phasing out of first generation missiles beginning. The phase out of Atlas D missiles started on 1 May, with the removal of the first missile from alert status at Vandenberg; it was concluded on 1 October, when the last missile of the 549th Strategic Missile Squadron, Offutt Air Force Base, Nebraska, was removed from alert. Three Atlas D squadrons were inactivated, while the fourth, the one at Vandenberg, remained active to support the Atlas E and Atlas F programs.

*Atlas E and F and Titan I phase out.* On 19 November, Secretary of Defense McNamara announced that all remaining first generation missiles, Atlas E and F and Titan I, would be phased out by the end of June 1965. The decision to phase out these missiles, some of which had been operational for less than two years, was indicative of the rapid technological advances being made in the missile field, particularly in the Minuteman and Polaris programs.

*Redesignation of Vandenberg units.* On 1 February, the 394th and 395th Missile Training Squadrons, Minuteman and Titan, respectively, were redesignated Strategic Missile Squadrons.

*Minuteman ripple launch.* On 29 February, two Minuteman missiles were launched in the "ripple" fashion, that is, a single launch crew of the 10th Strategic Missile Squadron, Malmstrom Air Force Base, Montana, gave both commands to launch. These successful launches, which occurred within less than 20 minutes of each other, were conducted at Vandenberg Air Force Base, California.



## Resources

<i>Personnel</i>	216,681 (30,336 officers, 164,414 airmen, 21,931 civilians)
<i>Tactical Aircraft</i>	1,490 (600 B-52, 665 EC/KC-135, 114 B-47, 93 B/TB-58, 18 EB/RB-47)
<i>Aircraft Units</i>	<p>32 Heavy Bomb Wings (29 15 UE and three 30 UE) and six Heavy Strategic Aerospace Wings (five 15 UE and one 30 UE) with B-52s; this included two 15 UE Heavy Bomb Wings that were in early stages of phasing out their B-52B aircraft</p> <p>Two Medium Bomb Wings (45 UE), one with B-47s, and three Medium Strategic Aerospace Wings, one with B-47s; the other units, one Medium Bomb Wing and two Strategic Aerospace Wings, had retired their aircraft as part of the accelerated B-47 phase out program</p> <p>Two Medium Bomb Wings (40 UE) with B-58s</p> <p>44 Heavy Air Refueling Squadrons (three 20 UE, 29 15 UE, 12 10 UE) with EC/KC-135s</p> <p>Five Medium Air Refueling Squadrons (20 UE) without aircraft assigned</p> <p>Four Reconnaissance Wings, one equipped with RB-47s, one with U-2s, one with RC-135s, and one without aircraft assigned</p>
<i>Missiles</i>	59 Titan II, 821 Minuteman, 542 Hound Dogs, and 465 Quail
<i>Missile Units</i>	<p>Six Titan II Squadrons (9 UE) fully equipped</p> <p>19 Minuteman Squadrons (50 UE), 16 fully equipped and three partially equipped</p>
<i>Active Bases</i>	40 CONUS; seven overseas (Puerto Rico, Spain, Newfoundland, Labrador, and Guam)

## Budget and Financial Status (FY 65, as of 30 June 1965)

<i>Operations and Maintenance</i>	\$740,594,000, includes supplies, communications, civilian pay, minor equipment purchased, and aviation petroleum, oil, and lubricants (POL)
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<i>Assets</i>	\$20,578,200,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,987,124,000, includes O&M listed above, military pay, military family housing, troop subsistence, and procurement of equipment

## Organization

*Inactivation of 7th Air Division.* Effective 30 June, Headquarters 7th Air Division, located at High Wycombe Air Station, was discontinued. Inactivation was effected approximately 90 days after B-47 Reflex operations had ceased at Brize Norton and Upper Heyford RAF Stations, the last two United Kingdom bases to support B-47s.

## Operations

*KC-135 and B-52 operations in Vietnam War.* In January, the 4252d Strategic Wing was activated at Kadena Air Base, Okinawa. Its mission at first was to provide KC-135 air refueling for the Pacific Air Forces' fighter-bombers engaged in air operations over South and North Vietnam. Later in the year, the 4252d began refueling B-52s that were carrying out bombing missions against Viet Cong bases in South Vietnam.

*First B-52 Arc Light bombing mission.* The first B-52 bombing mission was carried out on 18 June. On this mission, 27 B-52F bombers of the 7th and 320th Bomb Wings based at Guam were used to attack a Viet Cong jungle redoubt with conventional 750- and 1,000-pound bombs. In some circles, this first raid was regarded as a fiasco. Few, if any, Viet Cong were killed. Furthermore, two B-52s were lost in a mid-air collision on way to the target. The press, well indoctrinated in the nuclear bombing role of the B-52 and in the SAC strategic deterrence theory, regarded the use of B-52s against the Viet Cong as something closely akin to "swatting flies with a sledgehammer."

From June through December, the 7th, 320th, and 454th Bomb Wings, rotating crews and aircraft to the Pacific area, completed over 100 missions to South Vietnam. These B-52Fs were used primarily in saturation bombing of Viet Cong base areas, but later in the year, they were used in direct tactical support of the Marine Corps' Operation Harvest Moon and the First Cavalry Division's fight in the Ia Drang Valley.

*"Big Belly" modification program.* Throughout 1965, the SAC bombers committed to the Vietnam conflict were B-52F models. Each bomber's maximum bomb load was 51 750-pound bombs (27 internal and 24 external). In December, a "Big Belly" modification program was started to increase the B-52D's internal capacity to carry 500-pound bombs from 27 to 84 or its capacity to carry 750-pounders from 27 to 42. In addition, the B-52D could still carry 24 500-pound or 750-pound bombs externally. The maximum bomb load would be about 30 tons.

During the last six months of 1965, SAC KC-135s flew over 4,000 sorties in direct support of PACAF operations.

*B-47 and KC-97 phase out accelerated.* In early October, Headquarters USAF initiated Project Fast Fly, which directed that SAC's remaining five B-47 wings and six KC-97 air refueling squadrons be phased out approximately six months ahead of the previously-established deadline of June 1966. By the end of the year, three wings had disposed of their aircraft. Two wings, the 9th and 100th, retained their aircraft and ground alert requirements until 31 December, after which they began disposing of their aircraft.

*Phase out of last KC-97s.* On 10 November, the last KC-97 was removed from ground alert. It belonged to the 9th Air Refueling Squadron at Mountain Home Air Force Base, Idaho. Disposition of all KC-97s was completed on 21 December, when the last two aircraft, serial number 53-0282 of the 100th Air Refueling Squadron, Pease Air Force Base, New Hampshire, and one, serial number unknown, of the 384th Air Refueling Squadron, Westover Air Force Base, Massachusetts, were flown to the storage facility at Davis-Monthan Air Force Base, Arizona.

*B-52 phase out.* SAC's two B-52B squadrons were also earmarked for accelerated phase out in early 1966. The B-52B phase out program had actually begun in March 1965 when SAC began retiring those aircraft that had reached the end of their service life; that is, they had reached a specific number of flying hours under certain conditions of structural stress.

On 8 March, the first B-52B (serial number 52-8714) to be retired under this program was transferred from the 22d Bomb Wing, March Air Force Base, California, to Chanute Air Force Base, Illinois, to be used for instruction purposes by the Air Training Command. On 29 September, the first B-52 to be assigned to SAC, ("B" model serial number 52-8711), was transferred from the 22d Bomb Wing (it had been transferred from the 93d Bomb Wing to the 22d in early 1956) to the Aerospace Museum, Offutt Air Force Base, Nebraska.

*Last KC-135 delivered.* On 12 January, the last KC-135 (serial number 64-14840) to be assigned to SAC was delivered to the 380th Air Refueling Squadron, Plattsburgh Air Force Base, New York.

*B-47 Reflex terminated in Spain.* On 31 March, B-47 Reflex operations ended at Moron and Torrejon Air Bases, Spain.

*B-58 and B-52 phase out.* On 8 December, Secretary of Defense McNamara announced another aircraft phase out program that would further reduce the Strategic Air Command's bomber force. Basically, this program called for the retirement of all B-58s and the older B-52s (C, D, E, and F models) by the end of June 1971. This reduction would be accompanied by additional base closures and unit relocations.

*The FB-111 selected for assignment to SAC.* On 10 December, Secretary of Defense McNamara somewhat softened the impact of his 8 December phase out announcement by announcing that 210 FB-111s would be purchased at a cost of \$1.7 billion and assigned to SAC as replacements for the older model B-52s and the B-58s. The new bomber was a modified version of the F-111 fighter which was originally designated TFX.

*PACCS force converted to all KC-135.* On 25 March, SAC's Post Attack Command Control System (PACCS) force was reorganized. The 4363d and the 4364th Post Attack Command Control Squadrons, located at Lockbourne Air Force Base, Ohio, and Mountain Home Air Force Base, Idaho, respectively, were discontinued. Their radio-relay missions were absorbed by EC-135As that were assigned to air refueling squadrons at Lockbourne and Ellsworth Air Force Base, South Dakota. Thereafter, the PACCS force became an all KC-135 system with EC-135s performing the Looking Glass and auxiliary airborne command posts' missions.

*SAC Automated Command Control System (SACCS).* On 1 March, the Strategic Air Command accepted the SAC Automated Command Control System (SACCS) from the Air Force Systems Command. Refined under the direction of the SACCS Management Group, which was established in Headquarters SAC, SACCS, or 465L as it was often called, provided means of complementing the numerous systems of voice transmission in operation throughout SAC with printed messages, which could be transmitted to and printed out by any or all SAC command posts in North America. SACCS also embodied data processing and data display subsystems. The data processing subsystem was composed of computers which stored information on the status of the aircraft and missile forces, while the data display subsystem provided a means for visually displaying this force status information to commanders and key national officials.

*Spot promotions terminated.* On 28 December, General John P. McConnell, USAF Chief of Staff, terminated the SAC Spot Promotion Program, which had been started by General LeMay in December 1949. General McConnell directed that all crew members who held these spot promotions would revert to their normal grades on 30 June 1966.

### **Bombing Competition**

After being cancelled for three years, the fourteenth SAC Bombing Competition was held from 12 through 18 September. New ground rules, more compatible with the ones for the original competition than with those for recent years, were issued to the participants, which included one aircraft and one crew from each of 44 bomb wings, two B-58, five B-47, and 37 B-52. This was the last competition for the B-47s. All aircraft staged out of Fairchild Air Force Base, Washington. The 454th Bomb Wing, a B-52F unit of the Second Air Force, won the Fairchild Trophy.

Air refueling squadrons did not participate in this competition, but the Saunders Trophy, which was normally awarded to the best tanker unit in the meet, was awarded to the 922d Air Refueling Squadron, Eighth Air Force. This award was based upon the past year's performance.

### **Missiles**

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—50; Other Agencies—51.

*Atlas E and F and Titan I phase out completed.* In line with Secretary of Defense McNamara's 19 November 1964 directive, all first generation missiles were removed from alert during the period from 4 January through 12 April. By 20 April, all missiles had been shipped to storage facilities for later use as launch vehicles in various research and development programs. With the phase out completed, the missile squadrons, three Atlas E, six Atlas F, and Six Titan I, were inactivated.

*Minuteman I program completed.* SAC completed its Minuteman I program on 15 June, when the sixteenth squadron, the 400th Strategic Missile Squadron, became operational at Francis E. Warren Air Force Base, Wyoming. The operational Minuteman I force actually consisted of two types of missiles, the "A" and "B" models. The slightly larger Minuteman B's second stage motor chamber was made of titanium while the Minuteman A's chamber was made of steel. The Minuteman A was assigned only to the three squadrons of the 341st Strategic Missile Wing, Malmstrom Air Force Base, Montana.

*Minuteman II program started.* Three Minuteman II squadrons were activated and assigned to the 321st Strategic Missile Wing, Grand Forks Air Force Base, North Dakota. These squadrons were partially equipped by the end of the year. The Minuteman II, appreciably longer than the Minuteman I models, was outfitted with a more powerful second-stage engine and possessed a greater range than the Minuteman I. It also possessed a more accurate re-entry vehicle and penetration aids to protect it from antiballistic missiles.

*Operational base launch.* On 1 March, a crew of the 44th Strategic Missile Wing launched a Minuteman I from Ellsworth Air Force Base, South Dakota. To preclude overflight accidents, Headquarters SAC limited the missile's flight to about seven seconds or a range of only two miles. Nicknamed Project Long Life, this successful firing demonstrated that a SAC missile crew could launch a Minuteman from an operational site.



# 1966

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## Resources

<i>Personnel</i>	196,887 (26,588 officers, 147,197 airmen, 23,102 civilians)
<i>Tactical Aircraft</i>	1,355 (591 B-52, 83 B/TB-58, 665 EC/KC-135, 16 RB-47)
<i>Aircraft Units</i>	29 Heavy Bomb Wings (25 15 UE and four 30 UE) and six Heavy Strategic Aerospace Wings (five 15 UE and one 30 UE) with B-52s 43 Heavy Air Refueling Squadrons (five 20 UE, 28 15 UE and ten 10 UE) with KC-135s Two Medium Bomb Wings (40 UE) with B-58s Four Reconnaissance Wings, one equipped with RB-47s, one with U-2s, one with RC-135s, and one partially equipped with SR-71s
<i>Missiles</i>	60 Titan II, 908 Minuteman, 548 Hound Dog, 457 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons, 19 fully equipped and one partially equipped
<i>Active Bases</i>	35 CONUS; three overseas (Puerto Rico, Guam, and Labrador)

## Budget and Financial Status (FY 66, as of 30 June 1966)

<i>Operations and Maintenance</i>	\$392,912,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$18,477,079,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,591,457,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Organization

*Sixteenth Air Force transferred.* With B-47 Reflex operations having ceased there in late March 1965, the Spanish base complex became less important to SAC operations. On 15 April, Headquarters Sixteenth Air Force and Moron,

Torrejon, and Zaragoza Air Bases were transferred from SAC to USAFE. SAC remained as a tenant at Torrejon, with its support functions being carried out by the 3970th Strategic Wing. On 25 June, the 3970th was discontinued and its personnel and functions were absorbed by the 98th Strategic Wing, one of those units preserved through redesignation after the B-47 phase out was completed.

## Operations

*Southeast Asia.* SAC continued conventional bombing missions in Southeast Asia with B-52 and KC-135 inflight refueling. As in 1965, the SAC bombers concentrated upon area bombing of Viet Cong base camps, with the primary objective being to keep the enemy from building up large forces in the jungle sanctuaries. At the same time, B-52s began to be used in direct support of ground troops who were in contact with the enemy.

Although the B-52s were used primarily against targets in South Vietnam, they were also used to bomb the approaches to the Mu Gia Pass in North Vietnam on 12 and 26 April. The objective here was to stop the infiltration of enemy troops who, after leaving the Mu Gia Pass, crossed over into Laos and made their way down the Ho Chi Minh Trail.

By late June, after one year of participating in the war, the B-52s were dropping approximately 8,000 tons of bombs each month. Missions were flown in all types of weather, night and day. In 1966, over 5,000 B-52 sorties released bombs over target. General William C. Westmoreland, Commander of the U.S. Forces in Vietnam, said, "... we know, from talking to many prisoners and defectors, that the enemy troops fear B-52s, tactical air, artillery and armor, in that order."

Throughout 1966, the B-52s continued to operate from Anderson Air Force Base, Guam. Normally two B-52 wings with augmentee aircraft and crews from other wings were maintained there for that purpose. While committed to the conflict, these B-52 wings were assigned to the 3d Air Division's 4133d Bomb Wing, Provisional, which was organized on 1 February. Normally each wing remained in combat for about six months. After being replaced by a wing from the CONUS, it returned home.

With the deployment of the 28th and 484th Bomb Wings to Guam in April, the B-52D bomber, modified with the Big Belly to carry more bombs, replaced the B-52F as the SAC bomber in the Vietnam conflict.

In June, SAC activated the 4258th Strategic Wing at U Tapao Airfield, Thailand, and gave it responsibility for satisfying some of the growing demand for inflight refueling. The majority of the KC-135s assigned to the 4258th and the 4252d Strategic Wings came from air refueling squadrons that were deployed to the area at the same time their parent B-52 wings deployed to Guam. These tanker forces were also augmented with aircraft and crews from other air refueling squadrons.

*Retirement of Last B-47s.* In the first half of 1966, Project Fast Fly, the accelerated phase out of all SAC B-47, KC-97, and B-52B aircraft, was com-



**During the lengthy Vietnam War, the Air Force again used strategic bombers in "tactical" strikes. Here a B-52D based on Guam unloads "iron bombs" over a suspected Viet Cong concentration during a 1966 bombing run.**

pleted. On 11 February, SAC's last two B-47 bombers (B-47E serial number 53-2286, assigned to the 100th Bomb Wing, Pease Air Force Base, New Hampshire, and B-47E serial number 53-6235, assigned to the 9th Strategic Aerospace Wing, Mountain Home Air Force Base, Idaho) were transferred to the storage facility at Davis-Monthan Air Force Base, Arizona. There were still RB-47s assigned to the 55th Strategic Reconnaissance Wing.)

*Disposition of Units.* All Fast Fly units were either redesignated and reorganized to support other type aircraft or inactivated before the end of June. Because of their illustrious records, the five medium bomb wings were retained in SAC: two became B-52 units, two became strategic reconnaissance wings, and one was moved to Spain. SAC's last five KC-97 air refueling squadrons were inactivated. Of the two B-52B wings that were phased out (all B-52B aircraft had been sent to storage by the end of June), one was inactivated and the other was equipped with B-52D aircraft from a less illustrious wing that was inactivated.

*First SR-71.* On 7 January, SAC's reconnaissance force received the first SR-71, a "B" model trainer (serial number 61-7957), assigned to the 4200th Strategic Wing at Beale Air Force Base, California. Capable of flying three times the speed of sound (Mach 3) at altitudes over 80,000 feet, the SR-71 could carry a variety of photographic, radar, and infrared sensors. Manned

by a pilot and reconnaissance systems officer, the SR-71 could survey an area of 60,000 square miles in one hour.

**B-52 Crash Palomares, Spain.** On 17 January, a B-52 collided with a KC-135 tanker during a high altitude refueling operation and both aircraft crashed near Palomares, Spain. There were four survivors and seven fatalities. Some radioactive material was released when two weapons underwent non-nuclear TNT-type explosions on impact. Cleanup work began immediately and involved removing approximately 1,400 tons of slightly contaminated soil and vegetation to the U.S. for disposal. Simultaneously, an exhaustive land and sea search was started to locate a nuclear weapon that had been lost. It was finally located on 15 March by a submersible about five miles from the shore and approximately 2,500 feet under water. Following several unsuccessful attempts to retrieve the weapon, during which time it became dislodged and slipped deeper and deeper into the water, it was recovered intact by a U.S. Navy recovery force on 7 April.

### **Bombing Competition**

**Fifteenth Competition.** SAC's fifteenth bombing competition was held from 2 through 8 October, Fairchild Air Force Base, Washington. Participants included one crew from each of 35 B-52 wings and two B-58 wings and three RAF crews flying Vulcan bombers.

Armed with the motto "Not to Win is a Very Bad Thing," which was provided by their commander, Lieutenant General David Wade, Eighth Air



In late 1965, Secretary of Defense McNamara ordered development of the controversial "swing-wing" TFX tactical strike fighter into a strategic attack configuration to help increase the size of the program. The first strategic FB-111 was delivered to SAC in October 1969. This FB-111A is flying high and slow, with variable-sweep wings fully extended and four SRAM attack missiles on underwing pylons. The wings sweep back for high-speed, low-level flight. Note the side-by-side crew seating. (General Dynamics photo)

Force wings completely dominated the competition. They captured the first four places in the overall competition for the Fairchild Trophy. The 19th Bomb Wing, a B-52 unit, won the trophy.

*Saunders Trophy.* In line with the procedure followed in previous years when air refueling squadrons did not participate in the competition, the Saunders Trophy was awarded to the unit with the best record in the previous fiscal year. The 1966 winner was Second Air Force's 906th Air Refueling Squadron.

## **Missiles**

*Missile Launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—55; Other Agencies—68.

*Minuteman Salvo Launch.* On 24 February, combat crews of the 341st Strategic Missile Wing launched simultaneously two Minuteman "A" missiles from test silos at Vandenberg Air Force Base, California. This salvo launch successfully demonstrated the multiple countdown and launch techniques that might be used at operational sites under actual combat conditions.

*Activation of Final Minuteman Squadron.* On 1 April, the 564th Strategic Missile Squadron, SAC's 20th and last Minuteman squadron was activated at Malmstrom Air Force Base, Montana, and assigned to the 341st Strategic Missile Wing. The 341st already operated three squadrons of Minuteman I missiles. The fourth squadron was scheduled to become operational with Minuteman II missiles in early 1967.

*Force Modernization Program.* Force Modernization entailed the replacement of Minuteman I, "A" and "B" series, missiles with Minuteman II or "F" series missiles. Scheduled to apply to the entire Minuteman I force, the modernization program began at Whiteman Air Force Base, Missouri, on 7 May, when the first flight of ten Minuteman I, "B" series, missiles were removed from their silos.

In order to prepare for the emplacement of Minuteman II missiles, it was necessary to completely retrofit the original missile launchers, control facilities, and other ground equipment. The Modernized Minuteman missile systems were not identical to the Minuteman II systems installed at Grand Forks and in the fourth squadron at Malmstrom. The force modernization program included modifying the missile's underground launching site to accept the advanced Minuteman II and renovation of the launch control center and related ground support equipment to accommodate the more sophisticated missile.

*Minuteman II Operational.* On 25 April, the first Minuteman II squadron, the 447th Strategic Missile Squadron, became operational at Grand Forks Air Force Base, North Dakota. Two additional 321st Wing squadrons had become operational at Grand Forks by 22 November.

*Inactivation of Last Atlas Squadron.* On 2 April, the 576th Strategic Missile Squadron (ICBM Atlas) which had been located at Vandenberg Air Force Base, California, since 1 April 1958, was inactivated.



## Resources

<i>Personnel</i>	191,305 (25,745 officers, 143,412 airmen, 22,148 civilians)
<i>Tactical Aircraft</i>	1,327 (588 B-52, 81 B/TB-58, 658 KC-135)
<i>Aircraft Units</i>	28 Heavy Bomb Wings (24 15 UE and four 30 UE) and five 15 UE Heavy Strategic Aerospace Wings with B-52s Two Medium Bomb Wings (39 UE) with B-58 42 Heavy Air Refueling Squadrons (four 20 UE, 31 15 UE, and seven 10 UE) with KC-135s Three Strategic Reconnaissance Wings (one equipped with U-2s, one with RC-135s, and one partially equipped with SR-71s); two Strategic Reconnaissance Squadrons with RC-135s
<i>Missiles</i>	63 Titan II, 973 Minuteman, 477 Hound Dog, and 448 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), 19 fully equipped and one converting from Minuteman I to Minuteman II missiles
<i>Active Bases</i>	32 CONUS; three overseas (Puerto Rico, Guam, and Labrador)

## Budget and Financial Status (FY 67, as of 30 June 1967)

<i>Operations and Maintenance</i>	\$397,952,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$16,942,453,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,556,355,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Operations

During 1967 B-52s flew approximately 9,700 effective bombing sorties in Vietnam, almost twice the number flown in 1966. Most of this bombing effort

was to support U.S. ground troops in contact with the enemy. A great deal of attention was also devoted to enemy troop concentrations and supply lines in the Ashau Valley, around Dak To near the Cambodian border, and in and around the Demilitarized Zone. In September, the majority of the targets struck by the B-52s was in the Demilitarized Zone. On 6 May, SAC flew its 10,000th B-52 sortie in Southeast Asia. Until that time, more than 190,000 tons of bombs had been dropped in less than two years of combat operations.

*"Big Belly" modifications completed.* Throughout the year, only B-52D bombers outfitted with the "Big Belly" modification were used in SEA (on 13 September, the last B-52D was modified to carry the increased bomb load). During the year, the following wings served as cadre units and, augmented by bombers and crews from other wings, were responsible for carrying out the conventional bombing effort: 306th, 91st, 22d, 454th, 461st, and 99th.

*B-52 operations from Thailand.* In early April, part of this B-52 force began operating out of U Tapao Airfield, Thailand. Staging out of this base, the bombers could complete their missions without KC-135 inflight refueling which was required when operating from Guam. This saved both time and money. The 4258th Strategic Wing, which had been functioning strictly as a tanker organization since June 1966, assumed control of the bomber operations from U Tapao.

*B-52 accidents in Southeast Asia.* In July SAC lost three B-52Ds as the result of accidents in Southeast Asia. On 7 July, two B-52s collided in the air and crashed in the South China Sea. Among the six casualties was Major General William J. Crumm, Commander of the 3d Air Division. On 8 July, another bomber crashed and was destroyed while attempting an emergency landing at Da Nang Air Base, South Vietnam. Five of the six crew members were killed.

*KC-135 Operations in Southeast Asia.* During 1967, SAC KC-135s operating out of Kadena, U Tapao, and other Western Pacific bases flew over 22,000 sorties while dispensing over 1.1 million pounds of fuel in support of B-52s and fighters of the Pacific Air Forces.

*KC-135 Refueling and Ninth Mackay Trophy.* On 31 May, a KC-135 crew of the 902d Air Refueling Squadron (Clinton-Sherman Air Force Base, Oklahoma) was involved in a complex and spectacular air refueling operation over the Gulf of Tonkin. This mission started out as a routine inflight refueling to two F-104s, but before it was over it involved saving six fuel-starved, carrier-based U.S. Navy aircraft (two KA-3 tankers, two F-8 fighters, and two F-4 fighters). At one point in this intricate operation, the KC-135 was refueling a KA-3 tanker which in turn was refueling an F-8. While the KA-3 was partially loaded with fuel that could be dispensed to other aircraft, it could not transfer this fuel to its own tanks. After satisfying everybody's fuel requirements, the KC-135's own fuel supply was so low that it had to land at an alternate base.

The Mackay Trophy for 1967, symbolic of the most meritorious flight of the year, was awarded to Major John H. Casteel and his three-man crew for

this life-saving mission. This marked the ninth time SAC personnel received this award.

*SR-71 and the sonic boom.* In July, SAC began making supersonic SR-71 training flights across the United States, after having warned residents of the corridors over which these flights were scheduled to expect sonic booms. Because the SR-71 normally operated at about 80,000 feet altitude, its sonic boom at that level resembled distant thunder and the impact was far less than that generated by the lower-flying supersonic B-58. However, when the SR-71 descended to around 30,000 feet for a refueling rendezvous with the KC-135, its sonic boom became more pronounced, particularly during descent and climb back to higher altitude. It was for this reason that refueling patterns were established over sparsely populated areas.

*Last RB-47.* On 29 December, SAC's last B-47 type aircraft was flown to the storage facility at Davis-Monthan Air Force Base, Arizona. This was an RB-47H reconnaissance aircraft (serial number 53-4296) of the 55th Strategic Reconnaissance Wing, Offutt Air Force Base, Nebraska. The last B-47 bomber aircraft had been retired on 11 February 1966.

*B-52 phase out.* In pursuance of Secretary of Defense McNamara's 1964 and 1965 decisions to eliminate a major part of the SAC bomber force by the end of FY 1971, three B-52 squadrons were inactivated in the first half of the year. However, the inactivation of these squadrons did not result in the immediate retirement of their "D" and "E" model aircraft. The "D" aircraft, which had been modified for conventional bombing, were used to bolster the resources of those SAC wings committed to the Southeast Asia conflict. Excess "E" model aircraft were designated nonoperational active (NOA) aircraft, that is, actively stored with operational units, maintained in a serviceable condition, and periodically flown. No additional crews or maintenance personnel were authorized for these aircraft. The only aircraft retired were a few "E" and "F" models that had reached the end of operational life by accumulating a specified number of flying hours under conditions of structural stress.

*Maintaining a deterrent force.* While the war in Southeast Asia was demanding more and more B-52 and KC-135 support, the primary mission of SAC remained one of deterring a nuclear attack upon the United States. Toward this objective, SAC continued to maintain about 40 percent of the bomber force and nearly 100 percent of the ICBM force on alert. A small number of bombers continued to fly daily alert indoctrination missions.

## **Bombing Competition**

Scheduled to be held in October, the bombing competition was cancelled in August, because of "current operational commitments and overriding training requirements." Neither the Fairchild Trophy nor the Saunders Trophy was awarded in 1967.

*RAF Bombing Competition.* From 13 through 15 March, SAC participated in the RAF Bombing Competition. Each numbered air force sent one B-52

and crew to compete in this event at RAF Station Marham. Participants represented the 449th Bomb Wing, Second Air Force; 19th Bomb Wing, Eighth Air Force; and 93d Bomb Wing, Fifteenth Air Force. The overall SAC showing in this competition was disappointing; not one trophy was brought home.

## Missiles

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—38; Other Agencies—75.

*First missile competition.* With the ICBM force having become fairly stabilized, conditions were favorable to hold missile competitions similar to bombing competitions. Planning for the first missile competition began in mid-1966 and it was finally held from 3 through 7 April at Vandenberg Air Force Base, California. Participants included two combat crews and one target alignment team from each of the six Minuteman and three Titan wings. Crews were tested in missile procedure trainers, while the alignment crews were tested in the launch facilities.

The 351st Strategic Missile Wing, Eighth Air Force's lone Minuteman unit, made a clean sweep of the competition by winning all the Minuteman class awards and the Blanchard Trophy, which was awarded to the best wing in the competition. Established especially for the missile competition, this trophy was named in honor of General William H. Blanchard, who died on 31 May 1966 while serving as USAF Vice Chief of Staff. The recipient retained custody of the trophy until the next competition. The 381st Strategic Missile Wing, the Eighth Air Force's only Titan unit, won the Best Titan Wing award.

*Minuteman force modernization.* On 21 April, the 564th Strategic Missile Squadron, SAC's 20th Minuteman squadron, became operational at Malmstrom Air Force Base, Montana. It was equipped with Minuteman II or "F" series missiles, while its three sister squadrons, all assigned to the 341st Wing, were equipped with Minuteman I, "A" and "B" series, missiles. In December, the 341st entered the Force Modernization program, the conversion of its three older squadrons from Minuteman I to Minuteman II.

The Force Modernization program was completed at Whiteman Air Force Base, Missouri, where the 351st Strategic Missile Wing had become fully modernized and operational with Minuteman IIs on 3 October.

## Resources

<i>Personnel</i>	168,500 (24,323 officers, 124,221 airmen, 19,956 civilians)
<i>Tactical Aircraft</i>	1,307 (579 B-52, 76 B/TB-58, 652 EC/KC-135)
<i>Aircraft Units</i>	23 Heavy Bomb Wings (19 15 UE and four 30 UE) and four 15 UE Heavy Strategic Aerospace Wings with B-52s Two Medium Bomb Wings (39 UE) with B-58s 41 Heavy Air Refueling Squadrons (four 20 UE, 33 15 UE, and four 10 UE) with KC-135s Three Strategic Reconnaissance Wings (one with U-2s, one with RC-135s, and one with SR-71s) Two Strategic Reconnaissance Squadrons with RC-135s
<i>Missiles</i>	59 Titan II, 967 Minuteman, 312 Hound Dog, and 445 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), 19 fully equipped and one in process of converting from Minuteman I "A" and "B" series to Minuteman II or "F" series missiles
<i>Active Bases</i>	28 CONUS; three overseas (Puerto Rico, Guam, and Labrador)

## Budget and Financial Status (FY 68, as of 30 June 1968)

<i>Operations and Maintenance</i>	\$365,730,000 includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$16,436,434,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,548,967,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Organization

*FB-111 Group Organized.* Effective 2 July, the 340th Bombardment Group, Medium, was organized at Carswell Air Force Base, Texas. Assigned to the



19th Air Division of Second Air Force, the 340th was scheduled to be the first SAC unit to receive FB-111 aircraft. The 340th's primary mission was to train combat crews in the operation of the new bomber. Upon completion of their training, the crews would be assigned to an operational FB-111 wing.

## Operations

*Southeast Asia.* In 1968, SAC B-52s were called upon to provide more bombing missions in support of the U.S. forces in the Vietnam conflict. An increase was already being carried out in the early part of the year when the enemy launched the Tet offensive and laid siege to the U.S. Marine base at Khe Sanh. Almost simultaneously, along with the overall buildup of U.S. forces in the area as a result of the seizure of the U.S. Navy intelligence ship *Pueblo*, additional SAC bombers were sent to the Western Pacific.

The defense of Khe Sanh developed into the largest and most significant air campaign to date. Around-the-clock strikes were made against enemy forces besieging the base, with SAC bombers accounting for approximately 60,000 tons of bombs dropped. With fighter-bomber support being limited by the monsoon season, which was at its height on 21 January when the base was surrounded, the B-52 was particularly valuable. In conducting this bombing, the B-52 crews relied upon ground-based radar to direct them to their targets, where they destroyed tons of North Vietnamese supplies that had been concentrated in the area. These air attacks helped break the siege on Khe Sanh and force the North Vietnamese to withdraw.

Although the siege of Khe Sanh ended in early April, the B-52 bombing operations continued at a high level throughout the year, with a variety of targets hit in South Vietnam. Special attention was directed toward enemy areas in the Ashau Valley, the Kontum-Dak To tri-border area, and especially the communist assault corridor running southeast from War Zone C and the Cambodian border to Saigon.

The following B-52D wings provided cadre forces in the Western Pacific during the year: 99th, 509th, 28th, 92d, 454th, and 70th.

*Establishment of RTU at Castle.* On 15 April, a Replacement Training Unit (RTU) was established within the 93d Bomb Wing's 4017th Combat Crew Training Squadron at Castle Air Force Base, California. The RTU's primary mission was to cross-train crews from B-52F through B-52H model wings in the operation of B-52D aircraft. Upon completing the two-week school, the crews were used to augment the cadre units in Southeast Asia, thereby more equitably spreading out the combat duties among the entire B-52 force and providing the resources needed to meet the increased bombing effort.

SAC's KC-135s, operating under the single manager tanker concept that had been in effect since 1961, continued to support a variety of operations in Southeast Asia in addition to those directly associated with aircraft engaged in combat. They made possible the rapid deployment of tactical fighters and interceptors to Korea following the seizure of the USS *Pueblo*. In rotating to and from Western Pacific bases under the operational nickname of Young

Tiger, the KC-135s also furnished priority airlift of support personnel and augmentation crews.

*B-52 Crash at Thule.* On 22 January, a B-52G with four nuclear weapons aboard crashed and burned on the ice of North Star Bay while attempting an emergency landing at nearby Thule Air Base, Greenland. In cooperation with the government of Denmark, the U.S. Air Force conducted an extensive cleanup operation to remove all possible traces of radioactive material. This gigantic operation was completed on 13 September.

*B-52 Phase Out.* Although six B-52 squadrons (accounting for an authorization of 90 bombers) were inactivated during the year, there was only a slight decrease in the number of B-52s assigned to SAC. The Department of Defense and Headquarters USAF continued to allow SAC to retain the serviceable "E" and "F" model aircraft from these inactivated units and to assign them to active units. Only those B-52s that had exceeded their service life criteria were retired.

*Dispersal Program.* The dispersal program, which had been effectively used by B-47s in the Cuban Missile Crisis of 1962, was revived and expanded in early 1968 to include B-52s and KC-135s. The objective of this program was to provide a means of dispersing the aircraft force over a large number of bases, both military installations and civilian airfields, during periods of increased tension or international crisis. By providing additional bases to which the aircraft could be dispersed, the enemy's targeting problem was compounded, and more bombers could become airborne within a given time period.

## Missiles

*Missile Launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—24; Other Agencies—54.

Throughout 1968, the Force Modernization program continued within the 341st Strategic Missile Wing at Malmstrom Air Force Base, Montana. The 12th Strategic Missile Squadron was fully equipped with five flights of Minuteman IIs on 22 April. By the end of the year, the 10th Strategic Missile Squadron had almost completed the conversion, while the 490th Strategic Missile Squadron was still equipped with Minuteman I "A" and "B" series missiles.

## Resources

<i>Personnel</i>	164,328 (23,167 officers, 122,828 airmen, 18,333 civilians)
<i>Tactical Aircraft</i>	1,196 (505 B-52, 647 EC/KC-135, 41 B/TB-58, 3 FB-111A)
<i>Aircraft Units</i>	20 Heavy Bomb Wings (16 15 UE and four 30 UE) and four Heavy Strategic Aerospace Wings (15 UE) with B-52s Two 39 UE Medium Bomb Wings in process of phasing out their B-58s One 30 UE Medium Bomb Wing with no aircraft assigned and making preparations for equipping with FB-111As One Medium Bomb Group (15 UE), the FB-111 Training unit, with three FB-111As assigned 39 Heavy Air Refueling Squadrons (31 15 UE, seven 20 UE, and one 10 UE) with KC-135s Three Strategic Reconnaissance Wings (one with SR-71s, one with RC-135s, one with U-2s) Two Strategic Reconnaissance Squadrons with RC-135s
<i>Missiles</i>	1,005 Minuteman, 60 Titan II, 349 Hound Dog, and 430 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), 10 equipped with Minuteman I "B" series missiles and 10 with Minuteman II "F" series missiles
<i>Active Bases</i>	25 CONUS; three overseas (Puerto Rico, Guam, and Labrador)

## Budget and Financial Status (FY 69, as of 30 June 1969)

<i>Operations and Maintenance</i>	\$425,311,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$16,088,687,000, includes real property, inventories, equipment, and weapon systems

*Operating  
Expenses*

\$1,878,666,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

**Operations**

*Southeast Asia operations.* SAC B-52 conventional bombing operations in Southeast Asia continued at a steady pace during the year. In early January, U Tapao Airfield in Thailand was converted from a forward operating base to a main operating base for B-52s on duty in Southeast Asia.

Greater emphasis was placed on harassment and disruption of enemy operations than in previous years. Potential and actual enemy forces were hampered in South Vietnam, particularly in the III Corps Area around Saigon. The communist assault corridor running southeast from War Zone C and the Cambodian border to Saigon was struck repeatedly throughout the year and received more B-52 strikes than any other area. SAC bombers also continued to hit enemy supply dumps, base areas, troop concentrations and the infiltration network that supplied the enemy forces in the south.

SAC KC-135 tanker operations also continued at a steady pace in Southeast Asia, with the total air refueling sorties flown being only slightly less than those of the previous year. SAC support of tactical fighters continued to account for the largest number of tanker missions.

*Satellite basing.* On 20 February, SAC began testing a new satellite basing program at Homestead Air Force Base, Florida, a Tactical Air Command installation. In this test, B-52s and KC-135s of the 72d Bomb Wing, Ramey Air Force Base, Puerto Rico, were relocated to Homestead and placed on ground alert. The test was successfully completed on 20 May, and on 1 July several additional bases were brought into the satellite program. The program was designed to help counter an increasing sea-launched ballistic missile threat.

By placing small cells of bombers and tankers on satellite bases, SAC was able to increase simultaneously the number of targets a potential enemy must reckon with and at the same time reduce the time required to get the entire alert force off the ground. Satellite basing was, in effect, a continuation of the dispersal program of the late 1950s and early 1960s, wherein large B-52 wings of 45 aircraft were divided up into small wings of 15 aircraft each and relocated to other bases. Other than the difference in the size of the force, the primary distinction between the two programs was that in the latter one the entire force was maintained on continuous ground alert. A small detachment of maintenance and support personnel was also relocated from the main operating base to the satellite base. Crews rotated to and from the site.

*FB-111 program reduced.* On 19 March, Secretary of Defense Laird, in presenting revised FY 69 and FY 70 military budgets to Congress, announced that the FB-111 program would be reduced to four operational squadrons of about 60 aircraft plus some replacement aircraft. Secretary Laird further declared that the FB-111 did not meet requirements for a true inter-

continental bomber, but that purchase of four squadrons was necessary to "salvage what we can of work in progress."

*First FB-111A delivered.* On 8 October, in a formal ceremony at Carswell Air Force Base, Texas, SAC accepted the first operational FB-111A (serial number 67-7193). The aircraft was actually assigned to the 340th Bomb Group on 25 September; it was picked up by Colonel Winston E. Moore, the group commander, on 29 September. This FB-111A represented the first new type bomber the command had received since 1 August 1960, when SAC accepted the first B-58 in similar ceremonies at Carswell. Only two more FB-111As were delivered to the 340th before 24 December, at which time all F/FB-111 type aircraft were grounded following the 22 December crash of a F-111 fighter at Nellis Air Force Base, Nevada.

*Advanced Manned Strategic Aircraft (AMSA).* On 19 March, at the same time the FB-111 program was reduced, Secretary Laird announced that additional funds were being added to the defense budget to develop an entirely new, long-range manned bomber, the Advanced Manned Strategic Aircraft. He explained that these funds were not for purchasing the AMSA but rather for speeding up preliminary designs.

On 3 November, the Air Force requested proposal be submitted for full-scale engineering development of the AMSA or the B-1 as it had come to be called. The North American Rockwell Corporation, General Dynamics, and the Boeing Airplane Company were the three contractors interested in submitting proposals for the airframe and General Electric and Pratt and Whitney Division of United Aircraft for the engines.

## **Bombing Competition**

Having been shelved for operational commitments since 1966, the Bombing Competition was renewed in 1969 and held from 5 through 15 October at Fairchild Air Force Base, Washington. Participants included one aircraft and crew from 22 B-52 wings and two B-58 wings. Three Royal Air Force crews flying Vulcan bombers also competed. The B-52D wings, those units being used for conventional bombing in Southeast Asia, were allowed to participate at the discretion of the numbered air force commanders. Eighth Air Force's 70th, 306th, and 509th Bomb Wings and Second Air Force's 7th Bomb Wing did not enter the competition.

As in previous competitions, the scoring was handled by the 1st Combat Evaluation Group through its fixed and mobile radar bomb scoring facilities. Second Air Force's 319th Bomb Wing, a B-52H unit, won the combined bombing and navigation award, the Fairchild Trophy.

*Disposition of Saunders Trophy.* Among the numerous awards presented during the closing ceremony was the Saunders Trophy. General Holloway presented it to Eighth Air Force's 919th Air Refueling Squadron, the unit which Headquarters SAC had previously judged to be the top air refueling squadron in SAC.



## Missiles

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—34; Other Agencies—61.

*Phase out of Minuteman "A".* As part of the force modernization program, the last Minuteman I series "A" missiles were removed from their launch facilities at Malmstrom Air Force Base, Montana, on 12 February. Immediately thereafter, contractors began refurbishing the facilities for Minuteman II or "F" missiles. On 27 May, the force modernization program was completed at Malmstrom, when Flight K was returned to the 341st Strategic Missile Wing.

Upon completion of the force modernization program at Malmstrom, the SAC Minuteman force was composed of three wings with ten squadrons of Minuteman I "B" series missiles, and three wings with ten squadrons of Minuteman II or "F" series missiles.

## Missile Competition

SAC's second missile competition was held from 17 through 24 May at Vandenberg Air Force Base, California. Competitors included six Minuteman wings and three Titan II wings. Each wing was represented by two combat crews and one maintenance team. Each crew participated in three exercises which were conducted in a missile procedures trainer. The 4315th Combat Crew Training Squadron supplied the trainer facilities and the exercises were conceived and conducted by the 3901st Strategic Missile Evaluation Squadron. Maintenance teams participated in four exercises. They used the facilities of the 394th and 395th Strategic Missile Squadrons and the 51st Munitions Maintenance Squadron, all of which were located at Vandenberg.

Second Air Force's 321st Strategic Missile Wing, a Minuteman II unit, had the highest score in the combined areas of operations and maintenance and was awarded the Blanchard Trophy. The 321st also won the Best Minuteman Wing award, while Fifteenth Air Force's 390th Strategic Missile Wing won the Best Titan Wing award.

*Inactivation of 395th Strategic Missile Squadron (Titan).* Effective 31 December, the 395th Strategic Missile Squadron was inactivated. This inactivation was part of the Headquarters USAF directed manpower reduction program, Project 703. Since 1 February 1959, the 395th had been responsible for the maintenance and support of Titan facilities at Vandenberg Air Force Base, California. The 394th Strategic Missile Squadron, which had similar responsibilities for Minuteman missiles, absorbed some of the 395th's personnel and assumed responsibility for supporting Titan II activities at Vandenberg.

# 1970

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## **Resources**

<i>Personnel</i>	154,367 (23,244 officers, 112,401 airmen, 18,722 civilians)
<i>Tactical Aircraft</i>	1,159 (459 B-52, 658 EC/KC-135, 42 FB-111)
<i>Aircraft Units</i>	20 Heavy Bomb Wings (16 15 UE and four 30 UE) and four Heavy Strategic Aerospace Wings (15 UE), all with B-52s with exception of one strategic aerospace wing which was in the final stages of transferring its B-52s and making preparations to be equipped with FB-111As One Medium Bomb Wing (30 UE) in early stages of equipping with FB-111As One Medium Bomb Group (15 UE), the FB-111 training unit, with FB-111As 40 Heavy Air Refueling Squadrons (five 20 UE, 33 15 UE, and two 10 UE) with KC-135s Three Strategic Reconnaissance Wings (one with U-2s, one with SR-71s, one with RC-135s) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command Control Squadrons with EC-135s
<i>Missiles</i>	982 Minuteman, 57 Titan II, 345 Hound Dog, and 430 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), eight equipped with Minuteman I "B" series missiles, ten with Minuteman II "F" series missiles, one with Minuteman III "G" series missiles, and one in process of converting from Minuteman I "B" series to Minuteman III "G" series missiles
<i>Active Bases</i>	26 CONUS; three overseas (Puerto Rico, Guam, and Labrador)

## **Budget and Financial Status (FY 70, as of 30 June 1970)**

<i>Operations and Maintenance</i>	\$401,594,000, includes supplies, communications, civilian pay, and minor equipment purchased
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<i>Assets</i>	\$14,124,148,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,676,454,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Organization

As part of a Headquarters USAF-directed manpower reduction program (Project 703), which was announced in August 1969, SAC reduced its numbered air forces in the CONUS from three to two and effected a major realignment of combat forces.

*Closure of Headquarters Eighth Air Force.* Headquarters Eighth Air Force ceased operations at Westover Air Force Base, Massachusetts, on 31 March. At that time, all Eighth Air Force Bases and units were transferred to SAC's two other numbered air forces, the Second and Fifteenth.

With the closure of Headquarters Eighth Air Force, SAC was left only two numbered air forces in the CONUS for the first time since late 1949 when the Second Air Force was assigned.

*Numbered Air Force Realignment.* Under the realignment, the Second Air Force became an all manned aircraft command, consisting of B-52, FB-111, and KC-135 units; while the Fifteenth Air Force became responsible for all combat ICBM units, the entire strategic reconnaissance force, and a few B-52 and KC-135 units.

*Movement of Eighth Air Force.* The Eighth Air Force was not inactivated as originally announced. It was preserved by transferring the numerical designation to Guam. Effective 1 April, Headquarters Eighth Air Force moved without personnel and equipment to Anderson Air Force Base, Guam. Concurrently, Headquarters 3d Air Division, which had been at Anderson since 1954, was inactivated and its personnel and functions were absorbed by Headquarters Eighth Air Force.

*PACCS Reorganized.* On 1 April, SAC reorganized its Post Attack Command Control System (PACCS) and moved some of its EC-135s out of Westover Air Force Base, Massachusetts, Barksdale Air Force Base, Louisiana, and March Air Force Base, California. In this reorganization, all EC-135s were assigned to the 2d, 3d, and 4th Airborne Command and Control Squadrons, which were activated at Offutt Air Force Base, Nebraska, Grissom Air Force Base, Indiana, and Ellsworth Air Force Base, South Dakota. The basic function of PACCS remained unchanged. Airborne command post aircraft (Looking Glass) continued to remain airborne at all times in the vicinity of Offutt. Auxiliary airborne command post and relay aircraft remained on round-the-clock ground alert.

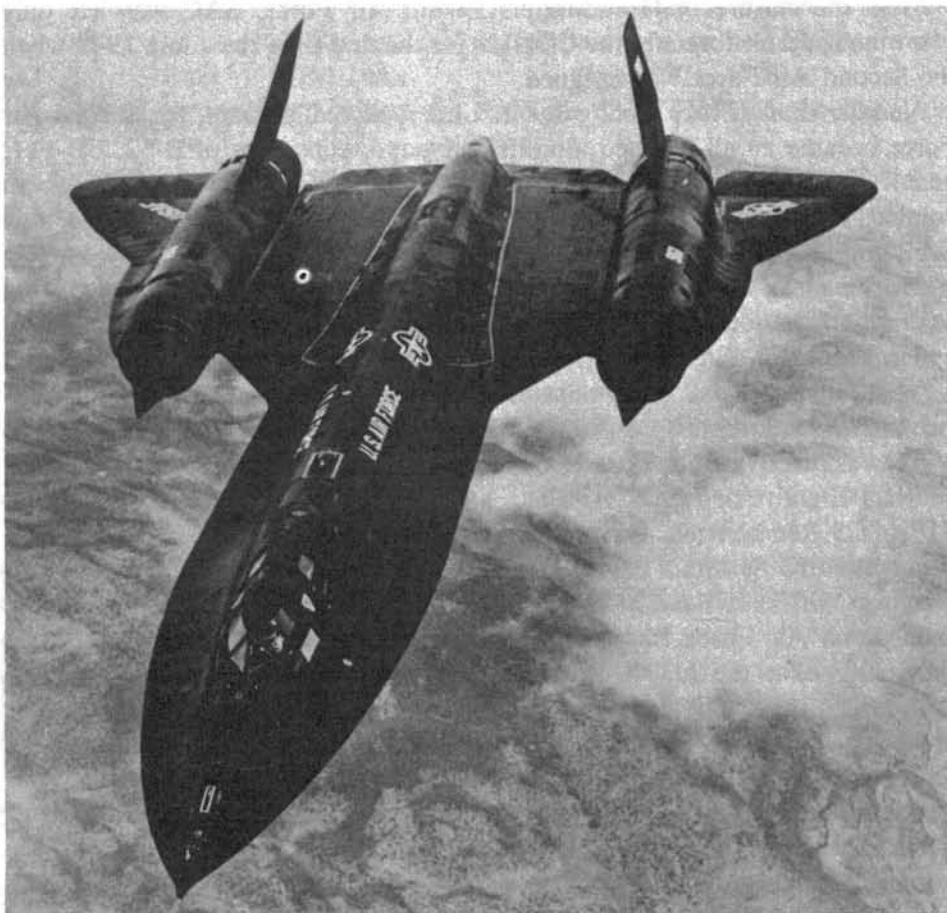
## Operations

*Southeast Asia operations.* Arc Light B-52 bombing operations in Southeast Asia declined during the year. Emphasis continued to be placed on harassment

and disruption of enemy operations. SAC bombers continued to hit enemy supply dumps, base areas, and troop concentrations, as well as infiltration networks supplying the enemy forces. From November 1969 through April 1970, B-52s flew interdiction missions against targets in Laos in support of Commando Hunt III. In April and May, B-52 Arc Light missions were flown in support of ground operations in Cambodia.

SAC KC-135 tanker operations in Southeast Asia also continued at a steady pace, although the totals were under those of the previous years. SAC support of tactical aircraft continued to account for the largest part of this activity.

*Retirement of last B-58.* On 16 January, the B-58 retirement program was completed when the last two Hustlers (serial numbers 55-662 and 61-0278) were flown to the storage facility at Davis-Monthan Air Force Base, Arizona. Both aircraft had been assigned to the 305th Bomb Wing, Grissom Air Force



This high-angle front view of an SR-71 strategic reconnaissance aircraft presents a menacing view of the Blackbird. The aircraft was designed to replace the U-2 in overflights of the Soviet Union, but all such flights were halted after missiles downed a U-2 flown by CIA pilot Francis Gary Powers on 1 May 1960.

Base, Indiana. At Davis-Monthan, these aircraft joined 82 other Hustlers, including eight TB-58s, that had been retired since 3 November 1969. The two aircraft that had been responsible for record-breaking flights in 1962 and 1963 escaped retirement to Davis-Monthan and were placed in museums: 59-2458, the aircraft flown in the 1962 round-trip flight from Los Angeles to New York to Los Angeles, went to the Air Force Museum, Wright-Patterson Air Force Base, Ohio; while 61-2059, the one flown in the 1963 flight from Tokyo to London, went to the SAC Aerospace Museum, Offutt Air Force Base, Nebraska.

*Retention of units.* Since both B-58 wings had histories extending back through World War II, they were retained in the Strategic Air Command. The 305th Bombardment Wing became the 305th Air Refueling Wing and remained at Grissom Air Force Base, Indiana. Effective 1 April, the 43d Bombardment Wing was redesignated the 43d Strategic Wing and replaced the 3960th Strategic Wing at Anderson Air Force Base, Guam. At the same time, two other illustrious units that had been inactive since 1965 were activated as strategic wings in the western Pacific. The 307th Strategic Wing replaced the 4258th Strategic Wing at U Tapao Airfield, Thailand, and the 376th Strategic Wing replaced the 4252d Strategic Wing at Kadena Air Base, Okinawa.

*B-1 development contract.* On 5 June, Secretary of the Air Force Robert C. Seamans, Jr., announced the two winners in the competition to receive the B-1 development contracts: North American Rockwell for the airframe and General Electric for the engines.

At that time, the B-1 was scheduled to be ready for flight testing in mid-1974, with production go-ahead, if authorized, to take place some time thereafter. The North American Rockwell contract called for the production of seven prototype airframes, five for flight tests, one for static tests, and one for fatigue tests. Subsequently, in February 1971, the number of aircraft scheduled to be built for flight tests was reduced to three in conjunction with a new concept to test more intensely and on an individual basis the airframe and engine before testing the completely developed aircraft.

*P. T. Cullen Award.* In 1970, Headquarters SAC revived the Brigadier General Paul T. Cullen Memorial Reconnaissance Trophy, which had been inactive since 1957 when it was given to the 26th Strategic Reconnaissance Wing for winning the SAC Reconnaissance Competition. It was revived as an annual rotating award to be presented to the reconnaissance unit that contributed most to the photographic and signal intelligence efforts of SAC. An *ad hoc* committee convened by the Headquarters SAC Deputy Chief of Staff for Operations selected the 82d Strategic Reconnaissance Squadron as the 1970 winner.

*Benjamin D. Foulois Memorial Trophy (Daedalian Trophy).* The 1970 Benjamin D. Foulois Memorial Trophy was awarded to SAC as the major air command with the most effective aircraft accident prevention program. After the death of Major General Benjamin D. Foulois in April 1967, the Order of



the Daedalians renamed its annual rotating trophy to commemorate the many contributions that General Foulois had made to aviation and flight safety.

### **Bombing Competition**

The 1970 Bombing Competition, which was held from 15 through 20 November, was unique in several aspects. For the first time since 1960, Fairchild Air Force Base, Washington, was not used as the staging base. Instead, McCoy Air Force Base, Florida, served as the host for all bombers. The tanker units staged out of their home bases. The second unique feature was that FB-111s participated for the first time. Also, tanker squadrons were included for the first time since 1961.

Competitors included one aircraft and crew from 23 B-52 wings and 28 KC-135 squadrons, two FB-111s and crews of the 340th Bomb Group, and three RAF crews with their Vulcan bombers. Nonparticipating SAC units included 12 KC-135 squadrons that were involved in Southeast Asia support or other assignments; the 96th Strategic Aerospace Wing, which was serving as a B-52 cadre unit in Southeast Asia; and the 509th Bomb Wing, which was in the process of equipping with FB-111s.

The Fairchild Trophy, which for many years had been awarded solely on the basis of bombing, was awarded to the B-52 wing and its assigned KC-135 air refueling squadron that had the highest combined points in the areas of bombing and navigation. It went to the 93d Bomb Wing, a B-52F unit of the Second Air Force.

The Saunders Trophy, previously given for air refueling and navigation, was given to the tanker crew with the most points for the navigation mission. Second Air Force's 11th Air Refueling Squadron was the recipient.

The Bombing Trophy, given for the best bomber crew in the area of bombing only, was awarded to one of the FB-111 crews of the 340th Bomb Group, also a Second Air Force unit.

The Navigation Trophy, denoting the best bomber or tanker crew in navigation, was won by the 5th Bomb Wing, a B-52H unit of the Fifteenth Air Force.

*Mathis Trophy.* The 5th Bomb Wing also won the Mathis Trophy, awarded to the bomber crew with the best score in the combined areas of bombing and navigation. Established by Headquarters SAC and given for the first time in the 1970 competition, this new trophy was named for 1st Lieutenant Jack W. Mathis, a World War II B-17 bombardier, who received the Medal of Honor posthumously for his bravery over Vegesack, Germany, on 18 March 1943. At the time of this action, Lieutenant Mathis was serving with the 303d Bomb Group of Eighth Air Force.

*RAF bombing competition.* In May 1970, four B-52 aircraft and crews from the 2d, 310th, 320th, and 379th Bomb Wings participated in the Royal Air Force Strike Command Bombing and Navigation Competition. These wings were selected to represent SAC on the basis of their standings in the 1969 SAC Bombing Competition. They were the two top B-52H and the two top B-52G wings in this meet.

Flying out of RAF Station Marham, a SAC team composed of crews and aircraft from the 319th, 320th, and 379th Bomb Wings won the Blue Steel Trophy, an inter-air force award for the best combined score in bombing and navigation.

## **Missiles**

*Missile launches.* Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—44; Other Agencies—41.

*Force modernization.* On 12 January the Minuteman Force Modernization program was continued at Minot Air Force Base, North Dakota, when Flight H of the 741st Strategic Missile Squadron (91st Strategic Missile Wing) was turned over to the contractor to be modified.

In this phase of Force Modernization, Minuteman I "B" series missiles were replaced with Minuteman III "G" series missiles. As in the earlier conversion programs, the launch facilities, ground support systems, and the launch control facilities required modification in order to accommodate the Minuteman III.

Minuteman III employed an improved third stage booster, carried more penetration aids to counter antiballistic missile defense systems, and could carry the Mark 12 Multiple Independently targetable Reentry Vehicle (MIRV) with three separate nuclear warheads.

*First Minuteman III accepted by SAC.* On 19 June, SAC accepted the first flight of 10 Minuteman III missiles at Minot. These missiles were assigned to the 741st Strategic Missile Squadron.

On 30 December, the 741st Strategic Missile Squadron was fully equipped with 50 Minuteman IIIs. In the meantime, the second squadron of the 91st Strategic Missile Wing had entered the Force Modernization program.

## **Missile Competition**

The Third Missile Combat Competition was held from 28 April to 5 May at Vandenberg Air Force Base, California. Three Titan II and six Minuteman wings competed, with each wing being represented by two missile combat crews and one maintenance team. Each combat crew participated in three individual exercises in a missile procedures trainer, and each maintenance team participated in four exercises.

The 44th Strategic Missile Wing, a Minuteman unit from Ellsworth Air Force Base, South Dakota, had the highest combined score in operations and maintenance and was awarded the Blanchard Trophy as well as the award for the Best Minuteman Wing. The 390th Strategic Missile Wing, Davis-Monthan Air Force Base, Arizona, won the award for the Best Titan Wing.

# 1971

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## Resources

<i>Personnel</i>	161,075 (23,043 officers, 118,300 airmen, 19,732 civilians)
<i>Tactical Aircraft</i>	1,126 (412 B-52, 648 EC/KC-135, and 66 FB-111)
<i>Aircraft Units</i>	19 Heavy Bomb Wings (15 15 UE, two 30 UE, one 25 UE, and one 22 UE) and three Strategic Aerospace Wings (two 15 UE and one 20 UE), one Strategic Wing (15 UE) with B-52s 38 Heavy Air Refueling Squadrons (ten 20 UE, 27 15 UE, and one 10 UE) with KC-135s One Medium Bomb Wing (30 UE) and one Strategic Aerospace Wing (36 UE) with FB-111As Three Strategic Reconnaissance Wings (one with U-2s, one with SR-71s, one with RC-135s) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command and Control Squadrons with EC-135s
<i>Missiles</i>	990 Minuteman, 58 Titan, 340 Hound Dog, and 430 Quail
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), 10 equipped with Minuteman II "F" series missiles, six with Minuteman I "B" series missiles, three with Minuteman III "G" series missiles, and one in process of converting from Minuteman I "B" series to Minuteman III "G" series missiles
<i>Active Bases</i>	28 CONUS and two overseas (Guam and Labrador)

## Budget and Financial Status (FY 71, as of 30 June 1971)

<i>Operations and Maintenance</i>	\$441,698,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$15,181,610,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$1,717,122,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Operations

*Southeast Asia operations.* On 18 June, SAC B-52s began their seventh year of conventional bombing in the Southeast Asia conflict. Throughout the year, the B-52s were used both in close bombing support of forces engaged in combat and in destroying roads and supply lines leading southward from North Vietnam along the Demilitarized Zone and the Laotian border. SAC's KC-135 tanker crews continued to provide inflight refueling for all types of tactical fighters engaged in the conflict. The KC-135s played an important airlift role by carrying men and equipment to and from Southeast Asia.

*Delivery of last FB-111.* On 30 June, SAC received its last FB-111 (serial number 68-291), which was assigned to the 340th Bomb Group, Carswell Air Force Base, Texas.

By early September, the 340th had transferred its FB-111s to the two operational wings—the 509th at Pease Air Force Base, New Hampshire, and the 380th at Plattsburgh Air Force Base, New York. Upon transfer of these aircraft the 340th's 4007th Combat Crew Training Squadron, which had been responsible for training FB-111 crews, ceased operations at Carswell and moved to Plattsburgh. Effective 31 December, the 340th Bomb Group was inactivated.

*B-52 phase out.* In 1971, SAC retired all "C" and several "F" model B-52s to the storage facility at Davis-Monthan Air Force Base, Arizona. SAC's last B-52C, serial number 53-402, which had been assigned to the 22d Bomb Wing, March Air Force Base, California, was retired on 29 September. The



All USAF tankers are managed by the Strategic Air Command, but support all Air Force operations. This KC-135A Stratotanker is refueling an A-10 Thunderbolt II, a light attack aircraft developed specifically for the ground attack/anti-tank role. On occasion, USAF tankers have refueled naval aircraft, although most of the latter are configured for the flexible hose, probe-and-drogue refueling technique. Some SAC tankers are rigged for both methods. (Fairchild Republic photo)

93d Bomb Wing, Castle Air Force Base, California, continued to operate B-52Fs.

*Last C-47.* On 7 July, SAC's last C-47 was transferred to the USS *Alabama* Monument Commission. This VC-47D had been assigned to the 97th Bomb Wing, Blytheville Air Force Base, Arkansas. Since its organization on 21 March 1946, SAC had continuously used C-47s, or "Gooney Birds" as they were usually called, for support and administrative purposes.

*SR-71 record flight and Tenth Mackay Trophy.* On 26 April, an SR-71 aircraft of the 9th Strategic Reconnaissance Wing, Beale Air Force Base, California, made a record-breaking 15,000-mile nonstop flight in ten and one-half hours, attaining speeds at times in excess of Mach 3 and at altitudes of over 80,000 feet. The flight, which began and ended at Beale, was made possible by several inflight refuelings by KC-135s. For this outstanding flight, Lieutenant Colonel Thomas B. Estes, aircraft commander, and Major Dewain C. Vick, reconnaissance systems officer, were named recipient of the Mackay Trophy for 1971.

*P. T. Cullen Award.* The P. T. Cullen Award, given annually to the unit that contributed most to the SAC photographic and signal reconnaissance mission, was awarded to the 55th Strategic Reconnaissance Wing for 1971.

## **Bombing Competition**

The eighteenth Bombing Competition was held from 12 through 17 December at McCoy Air Force Base, Florida. SAC participants included one aircraft and crew from each of 54 units: 22 B-52, 30 KC-135, and two FB-111. Three RAF crews and their Vulcan aircraft also participated. All major awards went to Second Air Force units. These awards and their recipients were as follows:

Fairchild Trophy, for the bomb wing and collocated tanker squadron with the best combined score in bombing and navigation, awarded to the 449th Bomb Wing, a B-52H unit.

Mathis Trophy, awarded to the best bomber crew in the combined areas of bombing and navigation, 17th Bomb Wing, a B-52H unit, and the Saunders Trophy, awarded to the best tanker crew, 11th Air Refueling Squadron.

Bombing Trophy, awarded to the best bomber crew in the area of bombing, 17th Bomb Wing. The Navigation Trophy, awarded to the best bomber or tanker crew in navigation, 93d Bomb Wing, a B-52F unit.

*RAF Bombing Competition.* From 17 to 24 April, SAC again participated in the Royal Air Force Strike Command's Bombing and Navigation Competition. SAC participants included one aircraft and crew from four B-52 units (2d, 320th, 379th, and 410th Bomb Wings), one KC-135 unit (11th Air Refueling Squadron) and one RC-135 unit (55th Strategic Reconnaissance Wing). The 340th Bomb Group and the 509th Bomb Wing each sent one FB-111 and crew to participate in a demonstration capacity. The 410th Bomb Wing, a B-52H unit, won the Blue Steel Trophy, an inter-air force award that



was given this year to the crew with the best combined score in bombing and navigation.

## **Missiles**

Total missile and Space Systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—43; Other agencies—41.

SAC's Minuteman Force Modernization Program continued throughout 1971. On 13 December, SAC accepted the last flight (Flight 0 of the 742d Strategic Missile Squadron) of Minuteman III "G" series missiles at Minot Air Force Base, North Dakota. With acceptance of this flight, the 91st Strategic Missile Wing became the first wing to be equipped with the new MIRV-carrying missile.

The 321st Strategic Missile Wing, Grand Forks Air Force Base, North Dakota, became the second wing to enter the Minuteman III force modernization program. Its first Minuteman III "G" series missile was postured on 24 December. In another phase of Force Modernization, Minuteman II "F" series missiles were replacing Minuteman I "B" series missiles in the 44th Strategic Missile Wing, Ellsworth Air Force Base, South Dakota.

*First Minuteman III operational launch.* On 24 March, a missile crew of the 91st Strategic Missile Wing conducted the first operational test of Minuteman III by successfully launching a missile from Vandenberg Air Force Base, California.

## **Missile Competition**

The fourth Missile Combat Competition was held from 20 to 28 April at Vandenberg Air Force Base. Competitors included two combat crews and one maintenance team from each of the nine strategic missile wings. The 351st Strategic Missile Wing, a Minuteman unit from Whiteman Air Force Base, Missouri, had the highest combined score in operations and maintenance and was awarded the Blanchard Trophy as well as the Best Minuteman Wing award. The 308th Strategic Missile Wing, Little Rock Air Force Base, Arkansas, was named Best Titan Wing.

# 1972

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## Resources

<i>Personnel</i>	162,701 (24,040 officers, 119,777 airmen, 18,884 civilians)
<i>Tactical Aircraft</i>	1,105 (402 B-52, 643 EC/KC-135, 60 FB-111)
<i>Aircraft Units</i>	22 Heavy Bomb Wings (17 15 UE, two 30 UE, one 25 UE, one 22 UE, and 20 UE) and one Strategic Wing (15 UE) with B-52s 38 Heavy Air Refueling Squadrons (ten 20 UE, 27 15 UE, and one 10 UE) with KC-135s Two Medium Bomb Wings (one 30 UE and one 36 UE) with FB-111As Three Strategic Reconnaissance Wings (one with U-2s, one with SR-71s, one with RC-135s) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command and Control Squadrons with EC-135s
<i>Missiles</i>	955 Minuteman, 57 Titan, 338 Hound Dog, 417 Quail, and 227 SRAM
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), nine equipped with Minuteman II "F" series missiles, five with Minuteman III "G" series missiles, three with Minuteman I "B" series missiles, one converting from Minuteman I "B" series to Minuteman III "G" series missiles, one converting from Minuteman I "B" series to Minuteman II "F" series missiles, and one converting from Minuteman II "F" series to Minuteman III "G" series missiles
<i>Active Bases</i>	30 CONUS and two overseas (Guam and Labrador)

## Budget and Financial Status (FY 72, as of 30 June 1972)

<i>Operations and Maintenance</i>	\$468,972,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$15,324,145,260, includes real property, inventories, equipment, and weapon systems

*Operating Expenses* \$1,946,362,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## **Organization**

In order to control effectively the additional B-52 and KC-135 aircraft and crews deployed to counteract the North Vietnamese offensive of early 1972, SAC created several new Eighth Air Force units. Completed on 1 July 1972, this expansion included activating provisional units (air divisions, air refueling squadrons, bomb squadrons, and consolidated maintenance wings) at seven Western Pacific and Southeast Asia bases.

## **Operations**

*Southeast Asia operations.* By early April, the North Vietnamese had launched a strong three-pronged attack against the South Vietnamese, striking specifically at Quang Tri, Kontum, and An Loc. As the offensive intensified, SAC sent additional B-52s and KC-135s to several Western Pacific and Southeast Asia bases. Anderson Air Force Base, Guam, which had not supported the B-52 bombing mission since late 1970, rejoined U Tapao Airfield, Thailand, as a B-52 launch base. U Tapao and Kadena Air Base, Okinawa, continued to support KC-135s engaged in refueling B-52s and tactical aircraft. By mid-year, as the demand for tactical aircraft support grew, tankers were also operating out of Clark Air Base, Philippines, and the three Thailand bases of Don Muang, Korat, and Takhli. Although successful in the early months, the North Vietnamese offensive was soon repelled as the B-52 incessantly bombed enemy troop positions and supply concentrations in all three areas of the attack.

*Linebacker II.* In mid-December, after the North Vietnamese had terminated peace negotiations in Paris, President Nixon ordered the bombing of military targets in the Hanoi and Haiphong areas of North Vietnam in an effort to bring the North Vietnamese back to the peace table. Nicknamed Linebacker II and covering an 11-day period from 18 through 29 December—there was a 24-hour pause in the bombing on Christmas—the B-52s flew over 700 sorties against 24 target complexes, including rail yards, shipyards, communications facilities, power plants, railway bridges, MIG aircraft bases, air defense radars, and missile sites. All together, U.S. bombers, including tactical and Navy aircraft as well as B-52s, dropped 20,370 tons of bombs in this 11-day attack, with the B-52s accounting for over 15,000 tons.

In this attack on Haiphong and Hanoi, the B-52s encountered what has been described as one of the most heavily defended areas of the world, characterized by heavy concentrations of surface-to-air missiles (SAMs), MIG fighter aircraft, and anti-aircraft gun emplacements. The anti-aircraft and MIG fighters did not pose a formidable threat to the penetrating B-52s, but the SAMs did. In this 11-day war, over 1,000 missiles were fired at the B-52s and fifteen B-52s were shot down by SAMs.

Of the 92 crew members aboard these bombers, 26 were recovered by rescue teams, 33 bailed out over North Vietnam and were captured, 29 were listed as missing, and four perished in a bomber that crash landed. By 28 December, the North Vietnamese air defenses had been practically neutralized, and on the last two days of Linebacker II, the B-52s were able to fly over Hanoi and Haiphong without suffering any damage. On 30 December, North Vietnam announced that it was ready to resume peace negotiations.

While the bombing against North Vietnam was carried out by B-52s and tactical and Navy aircraft, the campaign would surely have been less effective, more costly, and appreciably prolonged without KC-135 tankers. From 18 through 29 December, the SAC tankers flew more than 1,300 sorties and provided inflight refueling for B-52s as well as tactical fighter and attack aircraft.

*The Collier Trophy.* The Collier Trophy, presented annually by the National Aeronautic Association for the greatest achievement in aeronautics or astronautics in America, was awarded jointly to the Eighth Air Force, the Pacific Air Force's Seventh Air Force, and the Navy's Task Force 77 for their combined efforts in the 11-day air campaign against North Vietnam.

*First SRAM.* On 4 March, the first operational Short Range Attack Missile (SRAM) was delivered to a SAC unit—the 42d Bomb Wing, Loring Air Force Base, Maine.

Designated the AGM-69A, the SRAM measures 14 feet in length and 18 inches in diameter and weighs approximately 2,230 pounds. Powered by a solid-propellant rocket motor and armed with a nuclear warhead, it can be launched from a bomber prior to reaching the target to increase the bomber's ability to attack heavily defended targets.

Each B-52G and H model aircraft could carry up to 20 of these missiles on wing pylons and on a rotary launcher in the bomb bay, while the FB-111 could carry as many as six missiles, two internally and four externally on wing pylons. All B-52G and H units and two FB-111 wings were to be equipped with the new missile.

On 15 June, a B-52G crew of the 42d Bomb Wing successfully launched the first operational SRAM over the White Sands Missile Range, New Mexico.

*P. T. Cullen Award.* The 100th Strategic Reconnaissance Wing was selected as the unit that contributed most to the SAC photographic and signal intelligence mission in 1972. For this significant accomplishment, it received the P. T. Cullen Award.

## **Bombing Competition**

Due to the heavy B-52 support of bombing operations in Southeast Asia, the 1972 SAC Bombing and Navigation Competition was cancelled.

*RAF Bombing Competition.* For the Royal Air Force Strike Command Bombing and Navigation Competition, conducted from 14 through 20 May, SAC entered four B-52 bombers and crews representing the 2d, 17th, 28th, and 449th Bomb Wings. The 28th Bomb Wing, a B-52G unit, won the Blue

Steel Trophy, which was given to the crew with the highest combined score in bombing and navigation.

## **Missiles**

*Missile launches.* Total missile and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—21; Other Agencies—44.

*Force modernization.* SAC's Minuteman Force Modernization Program, replacing older model missiles with new ones, continued at Grand Forks Air Force Base, North Dakota, and Ellsworth Air Force Base, South Dakota, throughout 1972. At Grand Forks, the 321st Strategic Missile Wing was converting from Minuteman II "F" series missiles to Minuteman III "G" series missiles, while at Ellsworth, the 44th Strategic Missile Wing was replacing its Minuteman I "B" series missiles with Minuteman II "F" series missiles.

*Command data buffer.* In November, the 90th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming, entered the Force Modernization Program when it started removing its Minuteman I "B" series missiles and making the sites ready for the new MIRV-carrying Minuteman III "G" series missiles. As part of the 90th's conversion program, a new retargeting system was to be installed. Called Command Data Buffer, the new system would enable crews in launch control centers to retarget rapidly through electrical means the Minuteman III missiles. It would replace a time-consuming procedure that required maintenance personnel to physically insert a new target tape into each missile.

## **Missile Competition**

SAC's fifth Missile Competition was held at Vandenberg Air Force Base from 6 through 14 April. In order to broaden participation and further increase interest in the meet, each wing sent four crews instead of two as in previous years. For the first time since the competition began in 1967, a Titan unit, the 381st Strategic Missile Wing, McConnell Air Force Base, Kansas, had the highest combined score in operations and maintenance and won the Blanchard Trophy. The 381st was also named the Best Titan Wing, while the 351st Strategic Missile Wing, Whiteman Air Force Base, Missouri, won the Best Minuteman Wing award.



# 1973

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## **Resources**

*Personnel* 163,754 (23,686 officers, 121,060 airmen, 19,008 civilians)

*Tactical Aircraft* 1,163 (422 B-52, 670 EC/KC-135, 71 FB-111), includes SAC aircraft undergoing maintenance and modification work at Air Force Logistics Command facilities; previously, these aircraft were not considered as being assigned to SAC

*Aircraft Units* 22 Heavy Bomb Wings (18 15 UE, two 30 UE, one 22 UE, one 20 UE) and one Strategic Wing (15 UE) all with B-52s except two 15 UE bomb wings which had transferred their aircraft to other SAC wings in preparation for inactivation as part of the programs to close McCoy Air Force Base, Florida, and to transfer Westover Air Force Base, Massachusetts, to the Air Force Reserve

38 Heavy Air Refueling Squadrons (Nine 20 UE and 29 15 UE) with KC-135s

Two Medium Bomb Wings (one 30 UE and one 36 UE) with FB-111As

Three Strategic Reconnaissance Wings (one U-2, one SR-71, one RC-135)

Two Strategic Reconnaissance Squadrons with RC-135s

Three Airborne Command and Control Squadrons with EC-135s

*Missiles* 970 Minuteman, 57 Titan, 329 Hound Dog, 417 Quail, and 651 SRAM

*Missile Units* Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), ten equipped with Minuteman II "F" series missiles, seven with Minuteman III "G" series missiles, two with Minuteman I "B" series missiles, and one converting from Minuteman I "B" series to Minuteman III "G" series missiles

*Active Bases* 30 CONUS and one overseas (Guam).

## **Budget and Financial Status** **(FY 73, as of 30 June 1973)**

<i>Operations and Maintenance</i>	\$509,873,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$16,088,315,000, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$2,194,824,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## **Organization**

*Air Force and Air Division Realignments.* By 1 July, the Second and Fifteenth Air Forces had completed a major unit realignment program. This program entailed giving the air divisions diversified missions with a variety of weapon systems rather than allowing them to specialize in one weapon system. It also included placing some ICBM units—one Minuteman and two Titan wings—under the Second Air Force rather than having all missile units concentrated in the Fifteenth Air Force as had been the case since the numbered air force realignment of early 1970. The numbered air force realignment was effected in a series of reassignment actions extending from 15 February through 1 July.

## **Operations**

*Southeast Asia Operations.* Following the B-52 Linebacker II bombing of targets in North Vietnam during December 1972, North Vietnam resumed the stalled Paris peace negotiations on 8 January. While the talks continued, B-52s pounded logistics targets in North Vietnam south of the 20 degree parallel. The B-52 bombing over North Vietnam ended on 15 January, and on 27 January, an agreement ending the war in Vietnam was signed in Paris. On that same day, B-52s flew their final mission of the war over targets in South Vietnam. Bombing of targets in Laos continued with a halt scheduled for 22 February as part of a peace agreement reached by the Laotian government. Because of enemy cease-fire violations, however, B-52s struck again on 23 February at the request of the Laotian government. Similar violations brought the bombers back briefly on 15, 16, and 17 April. Following the February halt to bombing in Laos, the B-52s struck only targets in Cambodia. Rebel Cambodians and North Vietnamese/Viet Cong forces advancing on Phnom Penh were repeatedly bombed by B-52s. Logistics targets located throughout Cambodia were also hit heavily in an effort to stem the enemy's drive. The bombers also struck gun positions and troop emplacements along road and river supply routes to enable needed supplies to reach the defenders of Phnom Penh.

*End of SAC bombing in Southeast Asia.* On 15 August, when all U.S. bombing of targets in Cambodia ceased, SAC B-52s terminated more than eight years of conventional bombing operations in Southeast Asia.

*Benjamin D. Foulois Memorial Trophy (Daedalian Trophy).* The 1973 Benjamin D. Foulois Memorial Trophy, also known as the Daedalian Trophy, was awarded to SAC as the major air command with the most effective aircraft accident prevention program.

*P. T. Cullen Award.* The P. T. Cullen Award, presented annually to the Strategic reconnaissance unit contributing most to the SAC photographic and signal intelligence effort, was won by the 6th Strategic Wing.

### **Bombing Competition**

In the spring of 1973, preliminary plans were made to renew the SAC Bombing and Navigation Competition. It was to be held at Carswell Air Force Base, Texas. In early June, however, Major General George H. McKee, SAC Chief of Staff, announced that the competition would not be held. Once again, as in 1972, operational commitments in Southeast Asia forced cancellation of the meet.

*RAF Bombing Competition.* In the 1973 Royal Air Force Strike Command Bombing and Navigation Competition, held from 29 April through 5 May, SAC's entries were from the 5th, 17th, 319th, and 410th Bomb Wings. In the competition for the Blue Steel Trophy, awarded to the top crew in the meet, the SAC wings placed second, seventh, eighth, and ninth. For SAC, it was the poorest showing since the 1967 meet.

### **Missiles**

Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—13; Other Agencies—31.

*Force modernization.* The force modernization program continued throughout 1973 in the 90th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming. On 20 June, SAC accepted the first flight (Flight P of the 400th Strategic Missile Squadron) of Minuteman III missiles, and on 21 November, the entire squadron became operational when the last flight (Flight S) was accepted. In the meantime, the second squadron of the 90th Wing had entered the force modernization program.

The 1973 SAC Missile Competition was the sixth to be held. Six Minuteman wings and three Titan wings each entered four combat crews and a composite maintenance team. The main competition took place during the period from 26 April to 4 May at Vandenberg Air Force Base, California. However, since Vandenberg no longer had Minuteman I launch facilities in operation, a portion of the competition was held at Francis E. Warren Air Force Base, Wyoming, from 9 through 13 April. This action was taken to accommodate the 90th Strategic Missile Wing, which was still operating Minuteman Is.

The 90th Strategic Missile Wing won the Blanchard Trophy, the award given to the best wing in the combined areas of operations and maintenance. The 90th also won the best Minuteman Wing award, while the 381st Strategic Missile Wing, the 1972 winner of the Blanchard Trophy, won the Best Titan Wing award.

## Resources

<i>Personnel</i>	152,321 (22,873 officers, 109,778 airmen, 19,670 civilians)
<i>Tactical Aircraft</i>	1,165 (422 B-52, 671 EC/KC-135, 72 FB-111)
<i>Aircraft Units</i>	20 Heavy Bomb Wings (17 14 UE, one 17 UE, one 28 UE, one 33 UE) and one Strategic Wing (14 UE) with B-52s 38 Heavy Air Refueling Squadrons (nine 20 UE and 29 15 UE) with KC-135s Two Medium Bomb Wings (one 30 UE and one 36 UE) with FB-111As Three Strategic Reconnaissance Wings (one U-2, one SR-71, one RC-135) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command and Control Squadrons with EC-135s
<i>Missiles</i>	999 Minuteman, 57 Titan II, 327 Hound Dogs, 415 Quail, 1,149 SRAM
<i>Missile Units</i>	Six Titan II Squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), ten equipped with Minuteman II "F" series missiles, nine equipped with Minuteman III "G" series missiles, and one in final stages of converting from Minuteman I "B" series to Minuteman III "G" series missiles
<i>Active Bases</i>	28 CONUS and one overseas (Guam)

## Budget and Financial Status (FY 74, as of 30 June 1974)

<i>Operation and Maintenance</i>	\$534,010,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$17,715,494,760, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$2,338,711,000, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Operations

*SR-71 record flights.* In September, an SR-71 aircraft of the 9th Strategic Reconnaissance Wing, Beale Air Force Base, California, made two world record speed flights. On 1 September, the aircraft flew from New York to London in one hour, 55 minutes, and 32 seconds, averaging 1,810.9 miles per hour. The old record, set by an RAF Phantom F-4K in 1969, was four hours, 46 minutes, and 57.6 seconds. The SR-71 was flown by Major James B. Sullivan, pilot, and Major Noel F. Widdifield, reconnaissance systems officer.

On 13 September, the same SR-71 aircraft, flown by Captain Harold B. Adams, pilot, and Major William C. Machorek, Jr., reconnaissance systems officer, established a world speed record in a flight from London to Los Angeles. This flight took three hours, 47 minutes, and 39 seconds at an average speed of 1,487.81 miles per hour.

*P. T. Cullen Award.* The P. T. Cullen Award, presented each year to the reconnaissance unit that contributed most to the overall SAC photographic and signal intelligence effort, was won by the 9th Strategic Reconnaissance Wing.

*First B-1 flight.* The B-1 bomber, which was being developed by Rockwell International Corporation was flight tested on 23 December, when Charles C. Bock, Rockwell's chief test pilot, flew the new aircraft for the first time. It took off from the B-1 assembly facility at Palmdale, California, and landed almost one and one-half hours later at Edwards Air Force Base, California.

## Bombing Competition

Having been canceled since 1971 due to operational commitments in Southeast Asia, the SAC Bombing Competition was renewed in 1974. Conducted from 10 through 16 November, the 1974 meet was the first one ever held at Barksdale Air Force Base, Louisiana, and the first one in which the Tactical Air Command participated. SAC participants included 20 B-52 wings, two FB-111 wings and 27 air refueling squadrons, with each participant entering one aircraft and crew. Tactical Air Command entered two F-111s and the Royal Air Force sent four Vulcan bombers. The major unit awards and their recipients were:

Fairchild Trophy, for the bomb wing and assigned tanker unit with the best combined score in bomber and tanker activity, 380th Bomb Wing, FB-111/KC-135.

Mathis Trophy, best bomber crew in bombing and celestial navigation, RAF, Vulcan.

Saunders Trophy, best tanker crew, 911th Air Refueling Squadron of the 68th Bomb Wing.

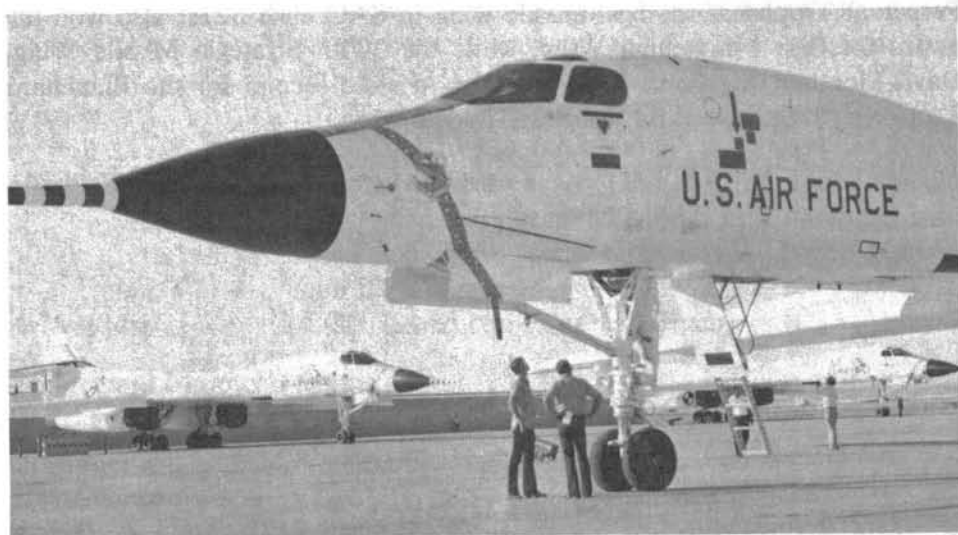
Bombing Trophy, best bomber unit in high and low bombing, 380th Bomb Wing, FB-111.

Navigation Trophy, best unit in navigation (FB-111s, and F-111s, did not compete), RAF Vulcan.





The swing-wing B-1 was planned to replace the venerable B-52 as a strategic bomber. However, President Carter cancelled the B-1 program on 30 June 1977. This photograph shows the three flying prototypes; the fourth, a ground test aircraft, was also built by Rockwell International, formerly North American Aviation. (Rockwell International photo)



A closeup of one of the three flying prototype B-1s. The aircraft has the SAC shield and band around the nose, as do two sister planes behind her. The B-1 has a length over the nose probe of 150.2 feet; the probe is 6.9-feet long. Note the forward-retracting landing gear and the downward opening crew hatch with retractable ladder. In addition to a four-man crew, there are folding seats for two additional personnel for test or training flights. (Rockwell International photo)

*William J. Crumm Linebacker Memorial Trophy Awarded for First Time.* William J. Crumm Linebacker Memorial Trophy, best B-52 crew in high bombing, 92d Bomb Wing. This trophy was named in honor of Major General William J. Crumm, former Commander of the 3d Air Division, who was killed while on a combat mission in a 1967 B-52 crash in the South China Sea. Donated to SAC by Boeing Aerospace Company, the trophy was first presented in the 1974 meet in memory of the B-52 crew members killed in action during Linebacker II, the December 1972 bombing of Hanoi and Haiphong, North Vietnam.

## **Missiles**

Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—14; Other Agencies—35.

*Force modernization program.* The force modernization program continued throughout 1974 in the 90th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming. On 3 September, the last Minuteman I was taken off alert, and by the end of December 1974, only two flights of the 320th Strategic Missile Squadron remained to be converted to Minuteman III.

## **Missile Competition**

Conducted at Vandenberg Air Force Base, California, from 25 April through 3 May, the 1974 Missile Competition was an exacting and hard-fought contest. The 321st Strategic Missile Wing, Grand Forks Air Force Base, North Dakota, competing under the slogan "Eat 'Em Up," came from eighth place on 26 April to first place on the final day to win the Blanchard Perpetual Trophy as the best missile wing in SAC. The 321st also won the award for Best Minuteman Wing, while the 390th Strategic Missile Wing, Davis-Monthan Air Force Base, Arizona, a close second for the Blanchard Trophy, won the award for the Best Titan II Wing.

## Resources

<i>Personnel</i>	140,735 (21,788 officers, 98,890 airmen, 20,057 civilians)
<i>Tactical Aircraft</i>	1,145 (420 B-52, 653 EC/KC-135, 69 FB-111, 3 E-4)
<i>Aircraft Units</i>	19 Heavy Bomb Wings (one 33 UE, one 28 UE, two 18 UE, one 17 UE, three 16 UE, 11 14 UE) and one Strategic Wing (14 UE) with B-52s 36 Heavy Air Refueling Squadron (one 22 UE, eight 20 UE, one 19 UE, three 18 UE, two 16 UE, 19 15 UE, one 14 UE, one 13 UE) with KC-135s Two Medium Bomb Wings (one 36 UE and one 30 (UE) with FB-111As Three Strategic Reconnaissance Wings (one U-2, one SR-71, one RC-135) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command and Control Squadrons, two with EC-135s and one with E-4s
<i>Missiles</i>	1,010 Minuteman, 57 Titan II, 308 Hound Dog, 355 Quail, and 1,451 SRAM
<i>Missile Units</i>	Six Titan II squadrons (9 UE) fully equipped and 20 Minuteman Squadrons (50 UE), nine equipped with Minuteman II "F" series missiles and 11 with Minuteman III "G" series
<i>Active Bases</i>	28 CONUS and one overseas (Guam)

## Budget and Financial Status (FY 75 as of 30 June 1975)

<i>Operation and Maintenance</i>	\$582,050,000, includes supplies, communications, civilian pay, and minor equipment purchased
<i>Assets</i>	\$18,234,032,783, includes real property, inventories, equipment, and weapon systems
<i>Operating Expenses</i>	\$2,558,099,158, includes O&M listed above, military pay, family housing, troop subsistence, and aviation petroleum, oil, and lubricants (POL)

## Personnel

*First Navigator to Command Flying Unit.* On 16 February, Brigadier General Eugene D. Scott became the first navigator in the USAF to command an operational flying unit, assuming command of the 47th Air Division, Fairchild Air Force Base, Washington. Only pilots were authorized to command flying units prior to 18 December 1974, when President Ford signed a law removing Congressional restrictions on command.

## Organization

*Movement of Headquarters Eighth Air Force, inactivation of Headquarters Second Air Force.* Effective 1 January 1975, Headquarters Eighth Air Force moved without personnel and equipment from Anderson Air Force Base, Guam, to Barksdale Air Force Base, Louisiana, where it absorbed the functions and personnel of Headquarters Second Air Force, which was inactivated. Headquarters Eighth Air Force had been located at Anderson since 1 April 1970, when it moved there from Westover Air Force Base, Massachusetts, in order to direct SAC combat operations in Southeast Asia.

At the time of this action, Headquarters USAF planned to move Headquarters Eighth Air Force to Barksdale and to inactivate Headquarters Second Air Force as soon as SAC operations in Southeast Asia had subsided.

*Activation of Headquarters 3d Air Division.* Concurrent with the above actions, Headquarters 3d Air Division, which had been inactivated at Anderson on 1 April 1970, was activated at that base and absorbed the personnel and functions of Headquarters Eighth Air Force.

*Transfer of KC-135s to air reserve forces.* In July 1974, Secretary of Defense Schlesinger directed SAC to transfer 128 KC-135 tankers to the air reserve forces in order to equip 16 eight UE units. Three units of the Air Force Reserve and 13 units of the Air National Guard would be involved in this program, which would extend over a four-year period. In the event of wartime mobilization, SAC would have control of these squadrons.

*Tanker aircraft transferred.* The transfer of aircraft actually began on 18 April 1975, when the 301st Air Refueling Squadron, Rickenbacker Air Force Base, Ohio, transferred the first KC-135, serial number 57-1507, to the 160th Air Refueling Group, also located at Rickenbacker. The 160th began operating on an eight UE basis on 1 July 1975. The second unit, the 157th Air Refueling Group, Pease Air Force Base, New Hampshire, entered the program on 1 October. Thus, by the end of December, a 16 UE element had been withdrawn from SAC to support these two units.

While these actions were taking place, SAC had inactivated two 15 UE air refueling squadrons: the 922d at Wright-Patterson Air Force Base, Ohio, on 30 September as part of the phase out of SAC activities at that base, and the 301st at Rickenbacker on 31 December as part of the Air Reserve Forces program. Redistribution of the 14 UE element remaining after these squadrons were inactivated was scattered among several units. This action along with

other aircraft authorization realignments created eight different categories of squadrons, each with a distinct UE.

*ACCS transferred to SAC.* Effective 1 November 1975, Headquarters USAF transferred the 1st Airborne Command and Control Squadron (ACCS) located at Andrews Air Force Base, Maryland, from Headquarters Command to SAC. Concurrent with this action, SAC acquired the E-4, a modified Boeing 747. The 1st ACCS had three E-4s, outfitted with EC-135 type communications equipment, to serve as the National Emergency Airborne Command Post. A fourth E-4 was at the Boeing plant in Seattle, where it was being outfitted with advanced type communications equipment.

*PACCS reorganization.* In a separate action to consolidate resources, SAC reorganized its Post Attack Command Control System (PACCS). Effective 31 December, the 3d Airborne Command and Control Squadron was inactivated at Grissom Air Force Base, Indiana, after its functions had been assumed by the 70th Air Refueling Squadron at Grissom and the 2d Airborne Command and Control Squadron at Offutt.

## Operations

*Operation New Life.* During the final evacuations from Cambodia and Vietnam, SAC flew tanker and reconnaissance sorties in support of the American withdrawal. Accompanying the final Americans were thousands of refugees fleeing the communist takeover of their homeland. From 23 April to 16 August, Anderson Air Force Base, Guam, became a temporary haven for the refugees. Practically everyone on Anderson assisted in Operation New Life, which processed about 110,000 refugees on their way to the U.S. and other countries.

*Spaatz Trophy awarded.* In appreciation of the outstanding support given its fighters over the years by SAC tankers, the Tactical Air Command donated a new trophy to SAC on 4 September 1975. Named "The General Carl 'Tooe' Spaatz Award" in memory of the first USAF Chief of Staff and a pioneer in the development of inflight refueling, the award would go on an annual rotating basis to the best air refueling unit. On 4 October, the trophy was presented for the first time to the 11th Air Refueling Squadron, Altus Air Force Base, Oklahoma.

*First SAC refueling of B-1.* On 21 April, SAC conducted its first inflight refueling of the B-1. The crew, under command of Lieutenant Colonel Fred C. Hartstein, came from the 1st Combat Evaluation Group, Barksdale Air Force Base, Louisiana, while the KC-135 tanker was furnished by the 22d Air Refueling Squadron, March Air Force Base, California. Previously, on 10 April, an Air Force Systems Command KC-135 and crew had conducted the first inflight refueling of the new bomber.

*First SAC pilot flies B-1.* On 19 September, Major George W. Larson, who was assigned to the 4200th Test and Evaluation Squadron, Edwards Air Force Base, California, became the first SAC pilot to fly the B-1. Accompanied by Charles C. Boch and Richard Abrams of Rockwell International Corporation,



Major Larson handled the aircraft controls for approximately one-third of the 6½-hour flight.

*P. T. Cullen Award.* The P. T. Cullen Award, presented annually to the reconnaissance unit contributing most to the overall SAC photographic and signal intelligence effort, was won by the 55th Strategic Reconnaissance Wing.

## Missiles

Total missiles and space systems launched during the year from Vandenberg Air Force Base: Launched by: SAC—14; Other Agencies—33.

*Force modernization program completed.* The force modernization program, a nine-year effort to replace all Minuteman Is with either Minuteman IIs or Minuteman IIIs was completed in 1975. The program within the 90th Strategic Missile Wing, Francis E. Warren Air Force Base, Wyoming, was completed on 21 January, about three weeks ahead of schedule. On that date, the Boeing Aerospace Company, the contractor responsible for remodeling the launch facilities, turned over to SAC the last flight of ten Minuteman III missiles (Flight Juliet of the 320th Strategic Missile Squadron).

A related program involved replacing 50 Minuteman II missiles of the 341st Strategic Missile Wing, Malmstrom Air Force Base, Montana, with a like number of Minuteman IIIs. This conversion began on 20 January, with Ogden Air Logistics Center handling the missile swap on an individual site basis, and was completed on 11 July when the 50th site of the 564th Strategic Missile Squadron was returned to SAC. This action brought the SAC Minuteman force up to a 450-Minuteman II/550-Minuteman III configuration.

As with previous meets, the 1975 SAC Missile Competition was held at Vandenberg Air Force Base, California, from 24 April through 2 May.

In addition to entering combat crews and maintenance teams, each wing sent a security police team. These security police teams competed in exercises to evaluate their reaction to normal and emergency situations endemic to their bases, written tests, and ability with the M-16 rifle.

The 1975 competition was also significant in that women participated for the first time. Sergeant Jo A. Williamson served on the 321st Strategic Missile Wing's electronics laboratory maintenance team, while Airman First Class Jeanine A. Sousley was a member of the 308th Strategic Missile Wing's reentry vehicle maintenance team.

The 381st Strategic Missile Wing, McConnell Air Force Base, Kansas, compiling the highest score in operations, maintenance, and security police exercises, received the Blanchard Perpetual Trophy. In duplicating its 1972 performance, the 381st became the first Titan II unit to win the top award for the second time. The 381st also won awards for Best Titan Wing and Best Missile Operations. Other major unit awards and their recipients were: Best Minuteman Wing, 44th Strategic Missile Wing, Ellsworth Air Force Base, South Dakota; Best Missile Maintenance, 308th Strategic Missile Wing, Little Rock Air Force Base, Arkansas; and Best Missile Security Police, 321st Strategic Missile Wing, Grand Forks Air Force Base, North Dakota.

## Resources

<i>Personnel</i>	145,869 (21,799 officers, 104,293 airmen, 19,777 civilians)
<i>Tactical Aircraft</i>	1,136 (419 B-52, 645 EC/KC-135, 69 FB-111, 3 E-4)
<i>Aircraft Units</i>	19 Heavy Bomb Wings and one Strategic Wing with B-52s 36 Heavy Air Refueling Squadrons with KC-135s Two Medium Bomb Wings with FB-111As Three Strategic Reconnaissance Wings (one U-2, one SR-71, one RC-135) Two Strategic Reconnaissance Squadrons with RC-135s Three Airborne Command and Control Squadrons, two with EC-135s, one with E-4s
<i>Missiles</i>	1,046 Minuteman, 58 Titan II, 308 Hound Dog, 355 Quail, and 1,445 SRAM
<i>Missile Units</i>	Six Titan II squadrons fully equipped and 20 Minuteman Squadrons, nine with Minuteman II "F" series missiles and 11 with Minuteman III "G" series
<i>Active Bases</i>	28 CONUS and one overseas (Guam)

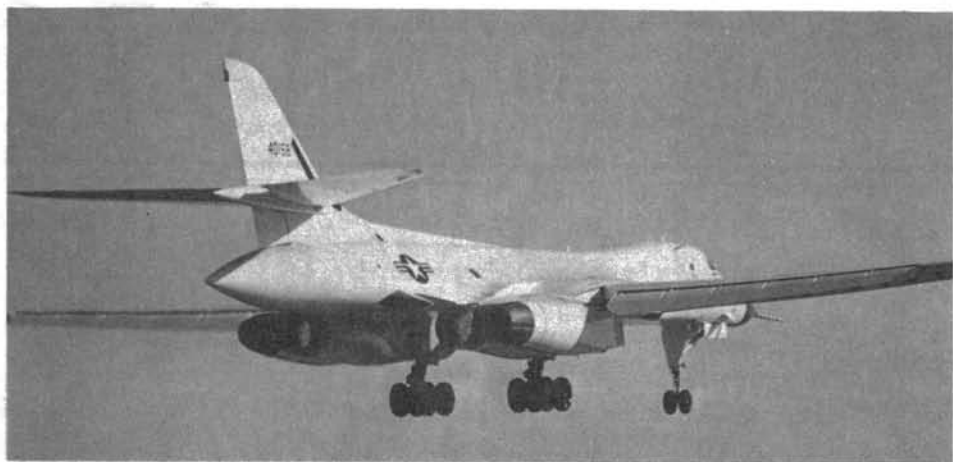
## Organization

*SAC's 30th anniversary.* On 21 March, the Strategic Air Command observed its 30th anniversary. In connection with this event, Secretary of Defense Rumsfeld visited Headquarters SAC on 19 March. Following his visit, Secretary Rumsfeld flew aboard a B-52H from Offutt to Whiteman Air Force Base, Missouri, where he toured Minuteman II missile facilities prior to returning to Washington, D.C.

## Operations

*Air launched cruise missile tested.* On 5 March, the Air Launched Cruise Missile, which was being developed by Boeing for possible use by SAC, was successfully launched from a B-52 at the White Sands Missile Range, New Mexico. Popularly referred to as the ALCM, the 14-foot missile was designed to carry a nuclear warhead into enemy defenses.

*Airborne Command Post marks 15th Anniversary.* On 3 February, at 3 p.m., when an EC-135 aircraft landed at Offutt Air Force Base, Nebraska, it



A prototype B-1 flies low and slow, with wings fully extended and landing gear lowered. Her four General Electric F101-series engines were developed in the 1960s specifically for the planned advanced strategic bomber. The aircraft's aerodynamic shape provides high speed at low levels and a relatively small radar cross section. Cost-saving modifications to the engine inlets have reduced the aircraft's maximum speed. Several other cost reduction modifications have been made to the earlier B-1 designs. (Rockwell International photo)

marked the 15th anniversary of the SAC Airborne Command Post. Since 3 February 1961, an EC-135 aircraft manned with a battle staff under command of a SAC general officer, called the airborne emergency action officer, had been maintained in the air continuously, ready to take command of the surviving elements of the SAC aircraft and missile forces in the event that Headquarters SAC and other ground-based alternate command headquarters were destroyed or unable to maintain contact with these forces.

Actually, three EC-135 aircraft perform this responsibility on a rotational basis, with each aircraft flying approximately eight hours before relinquishing its job to a replacement. Before each aircraft land, another aircraft and another complete crew is always airborne and ready to take control of the forces. During its first 15 years of continuous operation, the SAC Airborne Command Post had compiled the enviable record of flying 16,078 sorties and approximately 149,600 accident-free hours. Serving as airborne emergency action officer aboard the anniversary flight was Major General John W. Burkhart, SAC Deputy Chief of Staff for Operations.

B-29

## Strategic Bomber Aircraft

# B-29

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The Boeing B-29 Superfortress was the most advanced bomber aircraft to see operational service in World War II. It was used in conventional and low-level, night incendiary attacks against Japan. (The former were not particularly successful, leading General Curtis LeMay to resort to the latter tactic which was highly so.) The aircraft was also employed most profitably in the aerial mining of Japanese home waters. The B-29 was the world's first nuclear delivery vehicle with aircraft from the 393rd Bombardment Squadron (Very Heavy) of the 509th Composite Group dropping atomic bombs on Hiroshima and Nagasaki in August 1945. Another B-29 from the 509th (redesignated as a very heavy bomb group) dropped an atomic bomb in the Bikini atomic tests of July 1946.

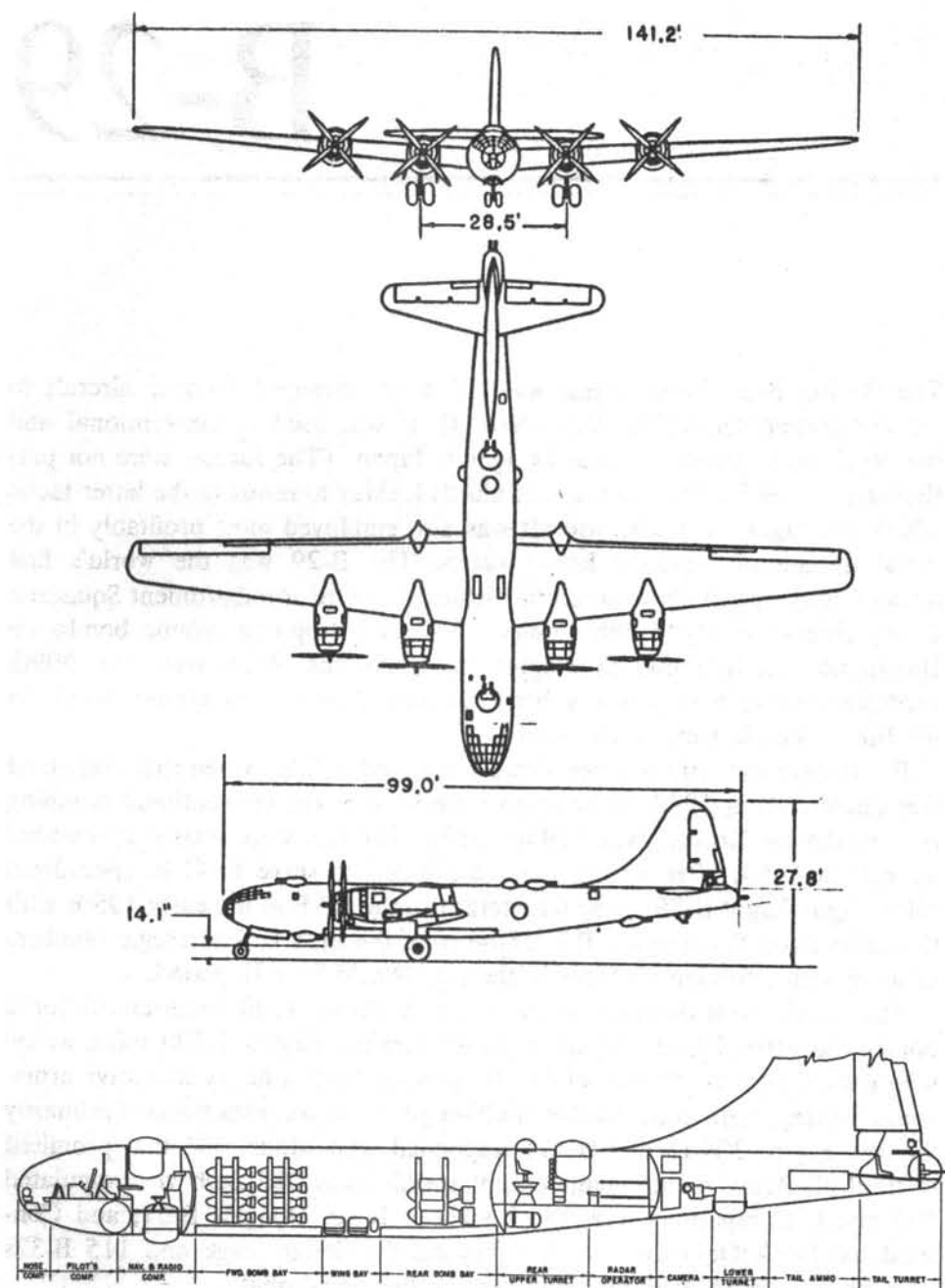
B-29s were the only bomber aircraft assigned to SAC when that command was established in 1946. They again were used in the conventional bombing role during the Korean War (1950-1953). The last were retired as bomber aircraft in 1954, after which many continued to serve SAC in specialized roles. Eighty-eight B-29s were transferred to the RAF in the early 1950s with the designation Washington B.I. These were the only U.S. strategic bombers to serve with a foreign air force in the post-World War II period.

The aircraft was designed to meet a U.S. Army 1940 requirement for a bomber to carry 2,000 pounds of bombs against targets 2,500 miles away, with a maximum bomb load of 16,000 pounds, with a heavy defensive armament. Boeing, with considerable multi-engine bomber experience (primarily the four-engine XB-15 and B-17) responded with Model 345 that promised to meet all Army requirements except speed (only 382 mph vice stipulated 400 mph). Competitors were the Lockheed B-30, Douglas B-31, and Consolidated B-32. Only the last went beyond the design stage and 115 B-32s were built, with 15 actually being used in Pacific combat.

More than 1,500 production B-29s were ordered between September 1941 and September 1942, when the first of several prototypes was flown. This large-scale pre-flight production was unprecedented in aviation history. B-29s were produced by Bell (668 aircraft) and Martin (536) in addition to Boeing (2,766).

The B-29 was a streamlined aircraft, with two separate pressurized sections in the fuselage, connected by a tunnel above the two bomb bays, and a pres-





surized tail gunner's position. The heavy defensive armament consisted of five remotely controlled gun turrets; two dorsal turrets with twin .50-caliber MGs, with the forward turret having four guns in later aircraft; two ventral turrets with twin .50-caliber MGs; and a tail turret, normally with twin .50-caliber MGs plus a single 20-mm cannon. For low-level fire bomb raids against Japanese cities and oil refineries, many B-29s were stripped of all armament except tail guns, an improved configuration made possible with

night-bombing tactics and minimal Japanese fighter opposition. Most of the F-13 reconnaissance aircraft had only tail guns or were completely unarmed.

In the post-war period B-29s served in a variety of special-mission roles, with four being flown by the U.S. Navy (P2B-1 series).

*Status:* Retired; 3,970 produced through May 1946 (several thousand additional B-29s were cancelled at the end of World War II).

*Variants:*

<b>XB-29</b>	Prototype aircraft; first flight 21 September 1942; 3 built.
<b>YB-29</b>	Service test aircraft; first flight 26 June 1943; 14 built.
<b>B-29</b>	Production aircraft; 101,082 lbs. combat, 133,500 lbs. normal maximum; 11 crew; 3,659 built (plus 311 completed as B-29Bs).
<b>B-29A</b>	Production aircraft; modified wing and improved engines (fuel decreased by 213 gallons, but overall range increased); 101,480 lbs. combat, 133,500 lbs. normal maximum; 11 crew; 1,119 built.
<b>RB-29/RB-29A</b>	Conversion to photographic reconnaissance; designated F-13/F-13A until 1948; no guns in most aircraft; fitted with cameras and additional fuel tanks in bomb bays; 118 converted from B-29/B-29A.
<b>B-29B</b>	Final production aircraft; all guns deleted except tail turret; fitted with APG-15 gun control radar system; 311 built.
<b>B-29C</b>	Planned production variant; improved engines; cancelled in 1945.
<b>B-29D</b>	Improved design; designation changed to B-50 in 1946.
<b>XB-29E</b>	Aircraft fitted for fire control tests; 1 converted from B-29 in 1946.



B-29 Super Fortress (Boeing photo)



**B-29A Super Fortress**

<b>B-29F</b>	Aircraft winterized for arctic operations; 6 converted from B-29.
<b>XB-29G</b>	Engine test aircraft with retractable turbojet in bomb bay; 1 converted from B-29B.
<b>XB-29H</b>	Aircraft fitted for armament tests; 1 converted from B-29A in 1947.
<b>YB/RB-29J</b>	Improved reconnaissance aircraft; 6 converted from B-29.
<b>YKB-29J</b>	First flying-boom tankers; 2 converted from RB-29J in 1948.
<b>CB-29K</b>	Aircraft stripped for cargo; 1 converted from B-29 in 1949.
<b>B-29L</b>	Initial designation of KB-29M.
<b>KB-29M</b>	Aircraft converted to hose-drogue tankers; armament deleted and additional fuel tanks and hose fitted; 92 converted from B-29 from 1948 onward.
<b>B-29MR</b>	Standard bomber aircraft fitted for long-range operations capable of refueling in-flight from KB-29Ms; 74 modified.
<b>B-29N</b>	Apparently not used.
<b>KB-29P</b>	Flying-boom tankers; armament deleted, additional fuel tanks and special radar installed; 116 converted from B-29 from 1949-1951.
<b>B-29Q</b>	Apparently not used.
<b>B-29R</b>	Apparently not used.
<b>B-29S</b>	Apparently not used.
<b>YKB-29T</b>	Triple-point hose tanker aircraft; 1 converted from KB-29M.
<b>QB-29</b>	Radio-controlled target drone configuration; several converted from 1954 onward.
<b>SB-29</b>	Search-and-rescue variant; fitted with large droppable life-boat; all weapons deleted; 16 converted.
<b>WB-29</b>	Weather reconnaissance aircraft; several converted.
<b>P2B</b>	Navy designation for B-29s acquired for long-range search missions; 1 modified for air launching of D-558-II research aircraft; 2 designated P2B-1S and 2 P2B-2S; all acquired 1947.
<b>XB-39</b>	First YB-29 as refitted with in-line piston engines.
<b>XB-44</b>	B-29A with improved engines; initially redesignated B-29D; Reordered as B-50.
<b>Washington B.I</b>	British designation for 88 B-29/B-29A aircraft transferred for service from 1950 to 1955.

### *Characteristics: (B-29A)*

<b>Crew</b>	11 (pilot, copilot, bombardier, navigator, flight engineer, radio operator, radar operator, 4 gunners)
<b>Weight</b>	72,206 lbs. empty; 101,480 lbs. combat; 133,500 lbs. maximum normal takeoff, 140,000 lbs. maximum overload takeoff
<b>Dimensions</b>	Span 141.2 ft., length 99 ft., height 27.8 ft., wing area 1,736 ft. <sup>2</sup>
<b>Engines</b>	4 Wright R-3350-57 or 57A radial piston (2,200 hp each)
<b>Fuel</b>	9,150 gallons internal
<b>Speed</b>	365 mph at 25,000 ft.; 220 mph cruise
<b>Range</b>	1,932-mile radius with 10,000-lb. bomb load; 1,561-mile radius with 20,000-lb. load; 5,420-mile ferry range
<b>Ceiling</b>	31,850 ft.
<b>Payload</b>	1 gravity nuclear weapon (when modified) or 4 × 2,000-lb. bombs or 8 × 2,000-lb. bombs or 12 × 1,600-lb. bombs or 12 × 1,000-lb. bombs or 40 × 500-lb. bombs (20,000 lbs. maximum)
<b>Guns</b>	10 or 12 × .50-caliber MG with 500 rounds per barrel; 1 × 20-mm cannon in some later aircraft with 60 rounds (replaced by MG in some aircraft)
<b>Electronics</b>	APQ-7 or APQ-23A bombing-navigation radar

# B-50

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The Boeing B-50 Superfortress was basically a B-29 with improved engines, the prototype being a B-29A originally designated XB-44 with R-4360-33 Major Wasp engines by Pratt & Whitney. This change and other improvements were incorporated in the B-29D variant which was put into production by Boeing in 1945. However, the aircraft's designation was changed to B-50 prior to the start of deliveries.

A low production rate of B-50s continued after World War II as the aircraft replaced the B-29 as the primary SAC bomber. Production was increased with the worsening U.S.-Soviet relations in the late 1940s, with B-50s remaining in SAC in the bomber role until October 1955.

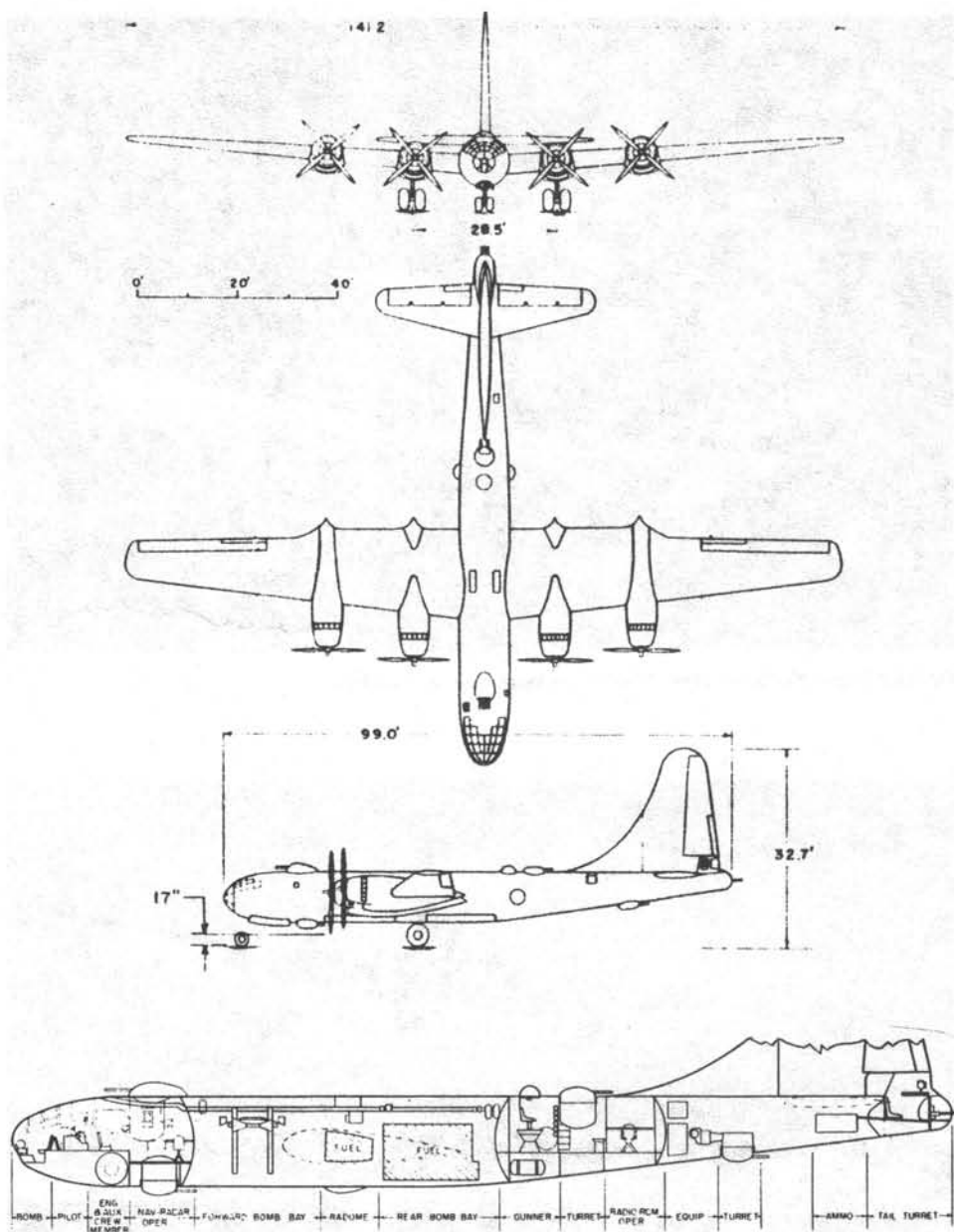
The B-50 could be easily distinguished from its antecedent by the larger engine nacelles, taller tail fin, and 1,500-gallon wing tanks. The B-50 also had improved wing materials, undercarriage, and hydraulic controls. There were several special mission configurations.

*Status:* Retired; 370 produced through March 1953.

## *Variants:*

<b>B-50A</b>	Production aircraft; 168,408 lbs. gross; 11-12 crew; first flight 25 June 1947; 79 built.
<b>TB-50A</b>	B-36 conversion trainer; 11 converted from B-50A.
<b>B-50B</b>	Production aircraft; 170,000 lbs. gross; 11-12 crew; first flight 14 January 1949; 45 built.
<b>EB-50B</b>	Test aircraft; 1 B-50B converted.
<b>RB-50B</b>	Reconnaissance aircraft; fitted with 9 cameras and weather monitoring equipment; 700-gallon wing tanks; 44 B-50B converted.
<b>YB-50C</b>	Prototype aircraft based on B-50A with improved engines; designation changed to B-54A; 14 B-54As and 29 RB-54As were ordered, but none completed.
<b>B-50D</b>	Production aircraft; 173,000 lbs. gross; 11 crew; fitted with 700-gallon wing tanks; first flight 23 May 1949; 222 built.
<b>DB-50D</b>	Aircraft modified for launching GAM-63 Rascal air-to-surface missile; 1 B-50D converted.
<b>TB-50D</b>	B-36 conversion trainer; 11 B-50D converted.





**WB-50D**

**RB-50E**

**RB-50F**

**RB-50G**

**TB-50H**

Weather reconnaissance aircraft; several B-50D converted.

Reconnaissance aircraft; 14 RB-50B converted.

Improved reconnaissance configuration; 14 RB-50B converted.

Improved reconnaissance configuration; 15 RB-50B converted.

Training aircraft for B-47 bombardier/navigators; no guns or in-flight refueling capability; 164,500 lbs. gross; 15 crew; first flight 29 April 1952; 24 built.



**TB-50D Super Fortress;** note "chins" on large engine nacelles



**B-50 Super Fortress**

**WB-50H**

Weather reconnaissance aircraft; several TB-50H converted.

**KB-50J**

Flying-boom tanker; fitted with 2 J-47 turbojet pods in place of wing tanks; 101 B-50D and 11 TB-50D converted.

**KB-50K**

Flying-boom tanker; similar to KB-50J configuration; 24 TB-50H and WB-50H converted.

### **Characteristics: (B-50A)**

<b>Crew</b>	11-12 (pilot, copilot, bombardier, navigator, flight engineer, radio operator, 1-2 radar operators, 4 gunners)
<b>Weight</b>	81,050 lbs. empty; 121,700 lbs. combat; 168,480 lbs. maximum
<b>Dimensions</b>	Span 141.2 ft., length 99 ft., height 32.75 ft., wing area 1,736 ft. <sup>2</sup>
<b>Engines</b>	4 Pratt & Whitney R-4360 Wasp Major radial piston (3,500 hp each)
<b>Fuel</b>	
<b>Speed</b>	385 mph at 25,000 ft.; 235 mph cruise
<b>Range</b>	2,325-mile radius with 10,000-lb. bomb load; 5,270-mile ferry range
<b>Ceiling</b>	37,000 ft.
<b>Payload</b>	1 gravity nuclear weapon or 20,000 lbs. bombs (load options as B-29)
<b>Guns</b>	13 × .50-caliber MG with 500 rounds per barrel
<b>Electronics</b>	APQ-24 bombing-navigation radar

# B-36

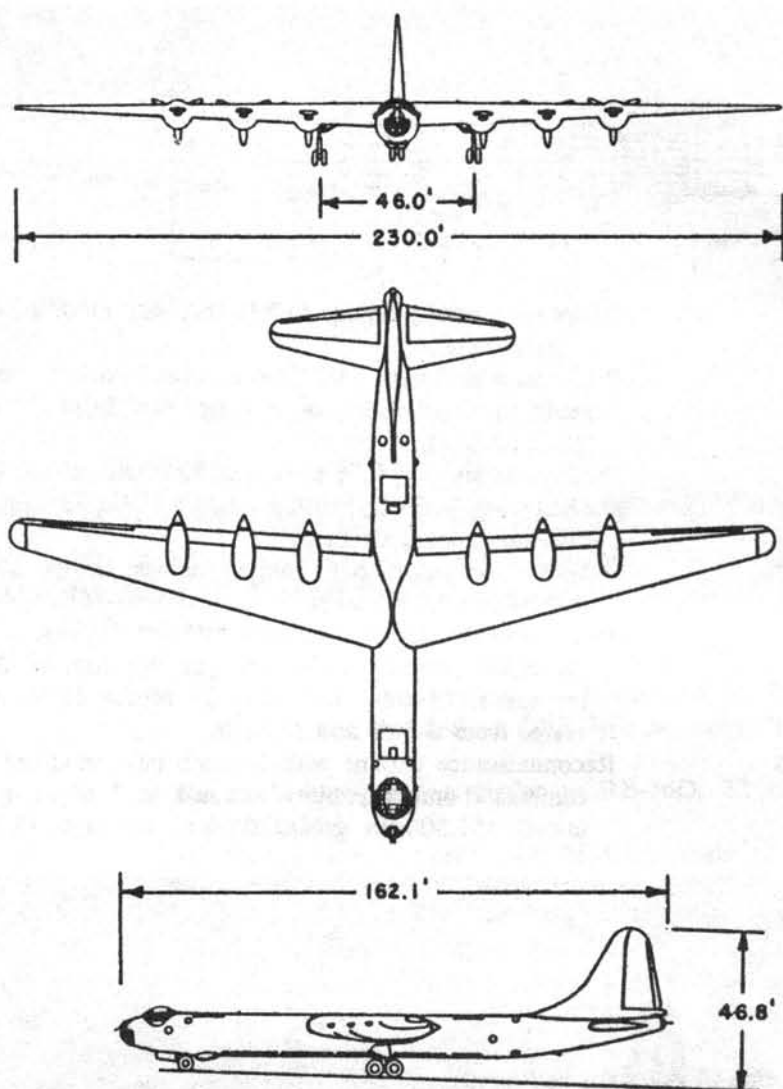
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The Convair B-36—unofficially known as the “Peacemaker”—was the world’s largest bomber in terms of length and wingspan. Conceived in 1941, when it still appeared the German armies might land in Britain, the B-36 was planned as a trans-Atlantic bomber to strike Europe from bases in the United States. The design goal was to carry a 10,000-pound bomb load against targets 5,000 miles away. Development of the B-36 was delayed by the Convair B-24 and then B-32 bomber production, but the giant bomber was ordered into production in mid-1943 for eventual use against the Japanese home islands. Still, the prototype XB-36 did not fly until three years later.

After World War II the aircraft was pursued as a strategic nuclear bomber amidst considerably controversy. General George C. Kenney, the first commander SAC, stated: “The B-36 is a night bomber. I would not use it in the daytime,” and further declared the plane might be suitable for the Navy’s anti-submarine mission. Kenney’s successor, General LeMay, supported the B-36, claiming “We can get a B-36 over a target and not have the enemy know it is there until the bombs hit.” Another aspect of the controversy was Navy opposition to a U.S. defense strategy based only on nuclear attack, which the Navy leadership felt was personified by the B-36 and reductions in Navy funds. The Navy’s opposition was labeled the “Admiral’s revolt” and resulted in special Congressional hearings into the B-36 program.

The huge B-36 had a relatively conventional design except for the six-piston pusher engines. From the B-36D variant onward these were supplemented by four turbojets in twin pods under the wings. These boosted top speed from 381 mph to 435 mph. The aircraft had pressurized crew compartments forward and amidships, connected by an 80-foot-long tunnel; a sled on tracks carried crewmen between the compartments. The RB variants had a third pressurized compartment. The tail gun was a remote, radar-controlled system. Four separate weapon bays were provided with a maximum bomb load being two 42,000-pound “Grand Slam” high-explosive bombs in the B-36D. Normal maximum bomb load was 72,000 pounds.

Defensive armament from the B-36 onward consisted of eight remotely controlled gun turrets, each with two 20-mm cannon. The six fuselage turrets could retract and be faired over while in flight to reduce aerodynamic drag, leaving only the nose and tail turrets exposed. An unusual defensive scheme



was the proposal to have the B-36 carry its own fighter escort. Using part of the bomb bay capacity, the aircraft was to carry and launch a fighter, which could also be recovered in flight. The XF-85 Goblin was designed for this role, but only the GRF-86F Thunderstreak, a reconnaissance aircraft, was operationally carried by the GRB-36D variant.

Some B-36D/H/J aircraft were stripped of all armament except the tail cannon and, with a crew of nine or more, could fly high-altitude missions. These were called "featherweight" bombers.

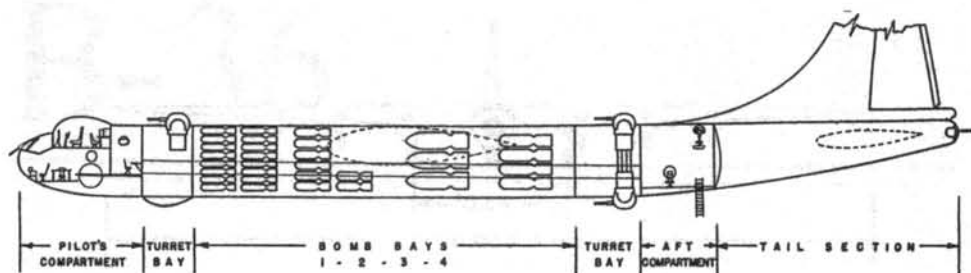
*Status:* Retired; 446 produced through August 1954.

*Variants:*

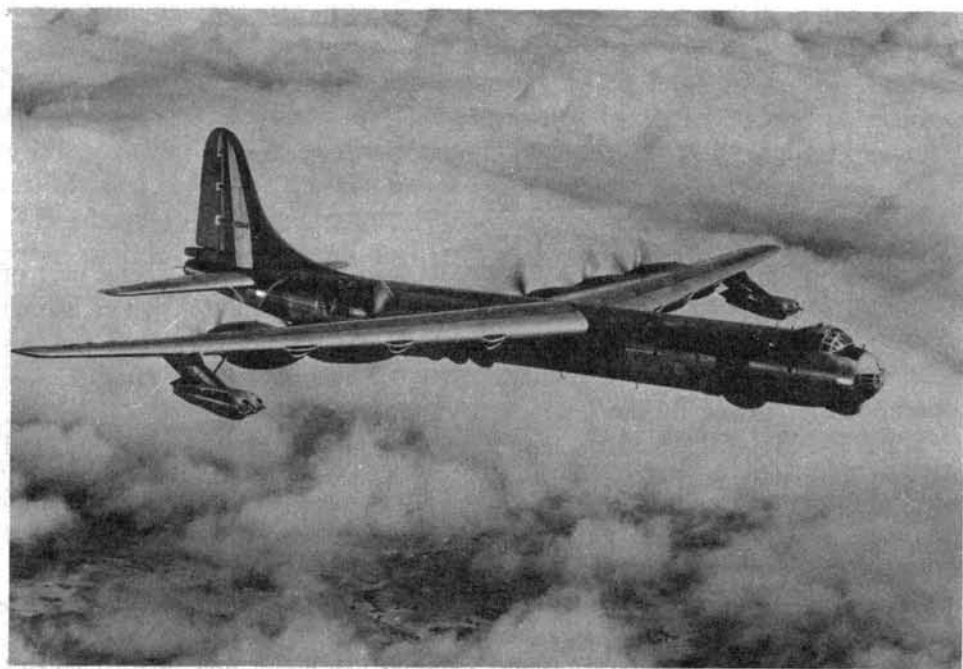
**XB-36**

Prototype aircraft; 265,000 lbs. gross; first flight 8 August 1946; 1 built.





- YB-36** Prototype aircraft; change to YB-36A with modified landing gear; 1 built.
- B-36A** Production aircraft; raised "green house" cockpit; no armament; used primarily for training; first flight 28 August 1947; 22 built.
- B-36B** Production aircraft; fully armed; 328,000 lbs. gross, 15 crew (including 4 relief); first flight 8 July 1948; 73 built. (First fully operational aircraft.)
- YB-36C** Proposed variant with 6 tractor engines; design cancelled and 34 aircraft on order completed as B-36B.
- B-36D** Production aircraft; fitted with 4 turbojet engines; improved navigation-bombing radar and gun fire control; 357,500 lbs. gross; 15 crew; first flight 26 March 1949; 64 converted from B-36B and 22 built.
- RB-36D** Reconnaissance variant with 2 bomb bays modified for 14 cameras (bomb capability retained in 2 bays); guns retained; 357,500 lbs. gross; 22 crew; first flight 18 Decem-



B-36D with four J47 turbojet engines in twin pods

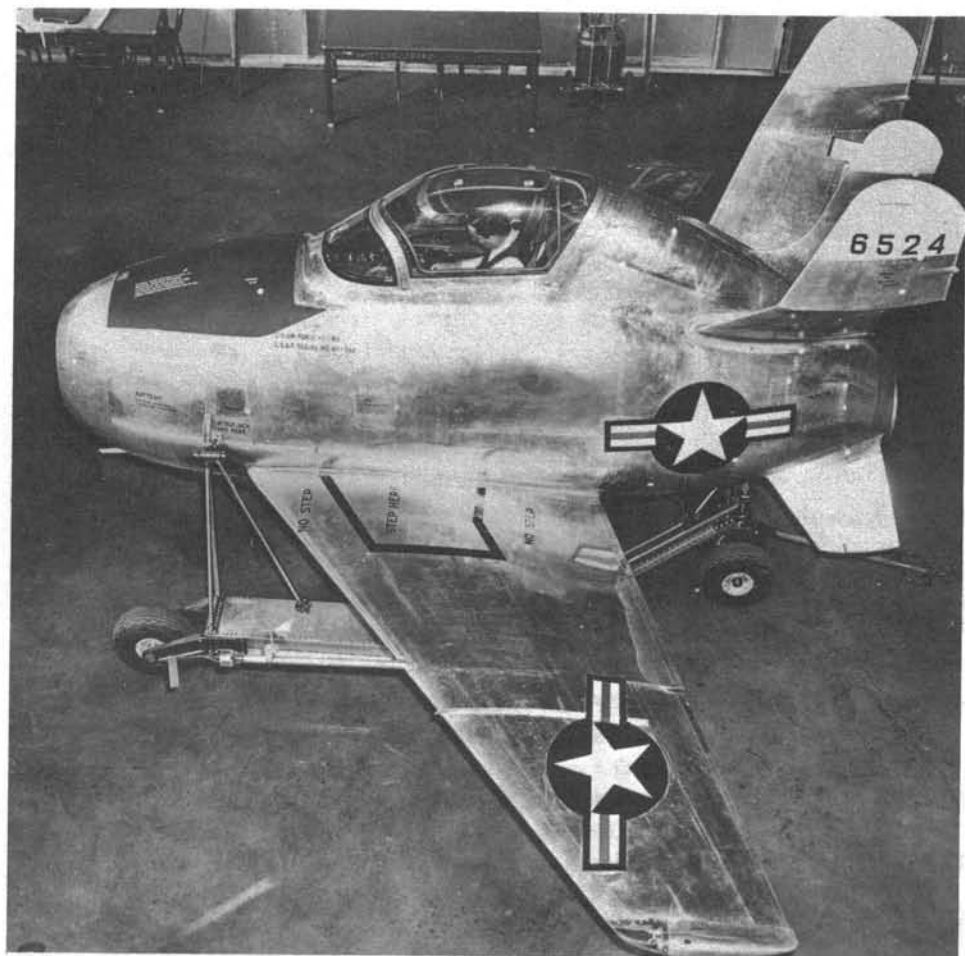


**B-36B**

- ber 1949; 7 converted from B-36B and 17 built; 12 subsequently modified to GRB-36D to carry "parasite" fighter.
- RB-36E** Reconnaissance variant similar to RB-36D; 22 converted from B-36A.
- B-36F** Production aircraft; similar to B-36D; first flight 18 November 1950; 28 built.
- RB-36F** Reconnaissance aircraft; similar to RB-36E with longer range; 24 built.
- YB-36G** Turbojet-propelled variant; designation changed to YB-60.
- B-36H** Production aircraft; similar to B-36F; first flight 5 April 1952; 81 built.
- RB-36H** Reconnaissance variant; improved RB-36F; 73 built.
- NB-36H** Aircraft modified to serve as nuclear engine test platform; fitted with reactor (did not power aircraft); 47 flights made from 1955 to 1957; 1 converted from B-36H.
- B-36J** Production aircraft; 410,000 lbs. gross; 15 crew; first flight 3 September 1953; 33 built.

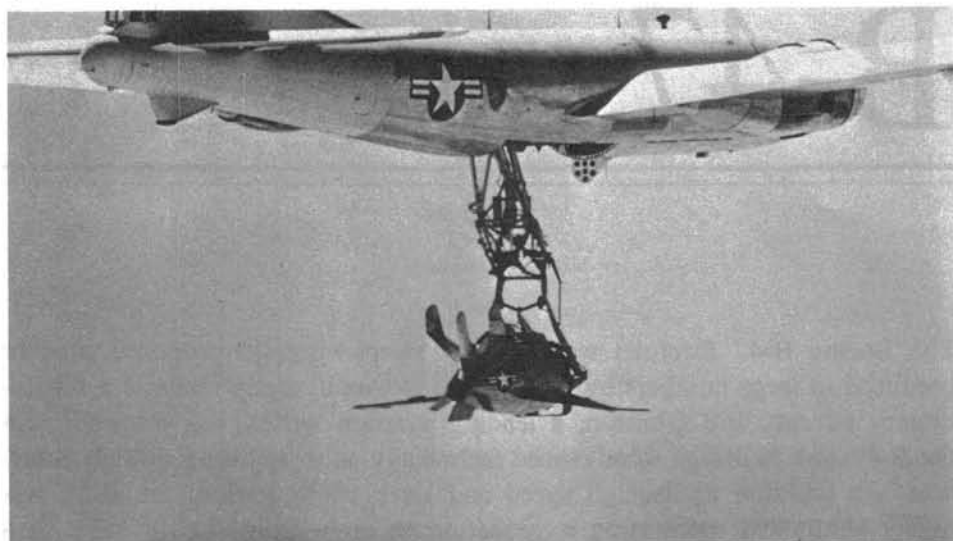
*Characteristics: (B-36J)*

- Crew** 15 (pilot, copilot, 2 navigators, bombardier, flight engineer, radio operator, radar operator, 2 ECM operators, 5 gunners)
- Dimensions** Span 230 ft., length 162.1 ft., height 46.6 ft., wing area 4,772 ft.<sup>2</sup>
- Engines** 6 Pratt & Whitney R-4360 Major Wasp in-line piston (3,800 hp each) and 4 General Electric J47-GE-19 turbojet (5,200



The XF-85 fighter was launched and recovered from an airborne bomber with an articulated trapeze. The fighter had a wing span of 21.1 feet and a length of 14.9 feet to permit carrying in a B-36 bomb bay. The "parasite" aircraft concept was used by the U.S. Navy before World War II when the airships Akron and Macon operated trapeze aircraft.

	lbs. static thrust each for 30 minutes; 4,730 lbst continuous)
<b>Fuel</b>	33,400 gallons internal; in addition, two bomb bays could each be fitted with 2,996-gallon tanks for long-range missions
<b>Speed</b>	411 mph at 36,400 ft.; 391 mph cruise
<b>Range</b>	3,990-mile radius with 10,000-lb. bombs; 2,399-mile radius with 72,000-lb. load; 9,443-mile ferry range
<b>Ceiling</b>	39,900 ft. combat; 45,200 ft. maximum
<b>Payload</b>	4 gravity nuclear weapons or 2 × 42,000-lb. bombs or 12 × 4,000-lb. bombs or 28 × 2,000-lb. bombs or 72 × 1,000-lb. bombs or 132 × 500-lb. bombs (normal maximum 72,000 lbs.)



A B-29 was modified to serve as an experimental mother aircraft for the XF-85 Goblin "parasite" fighter. The diminutive—4,850 pounds gross weight—fighter was to have been carried by B-36s to provide fighter escort as the bombers neared enemy territory. Only one XF-85 was built by McDonnell Aircraft. (McDonnell photo)

<b>Guns</b>	16 × 20-mm cannon with 600 rounds per barrel except 400 rounds per barrel in nose turret
<b>Electronics</b>	K-3A bombing-navigation radar, APG-41A tail gunfire control radar

# B-47

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The Boeing B-47 Stratojet was the first swept-wing, jet-propelled bomber produced in large numbers by any nation. It was in many respects a revolutionary aircraft. Bill Gunston, a leading aviation writer, has observed that the B-47 was "a design so advanced technically as to appear genuinely futuristic." In addition to its high speed and sleek configuration, the B-47 was highly automated, permitting a reduction in crew from the 11 men in a B-50—of roughly the same gross weight—to only three men, and the deletion of all gun armament except for a remotely controlled tail turret. Speed and defensive electronics permitted the elimination of the large number of guns found in earlier bombers.

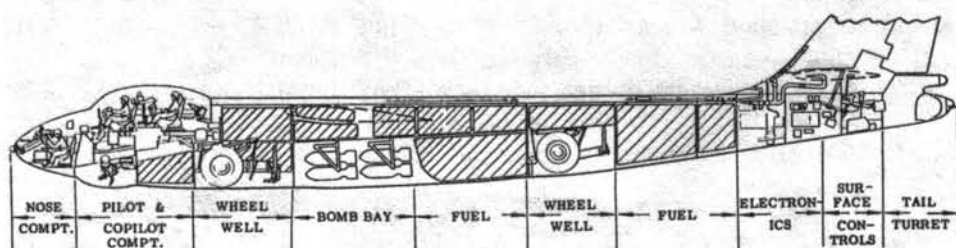
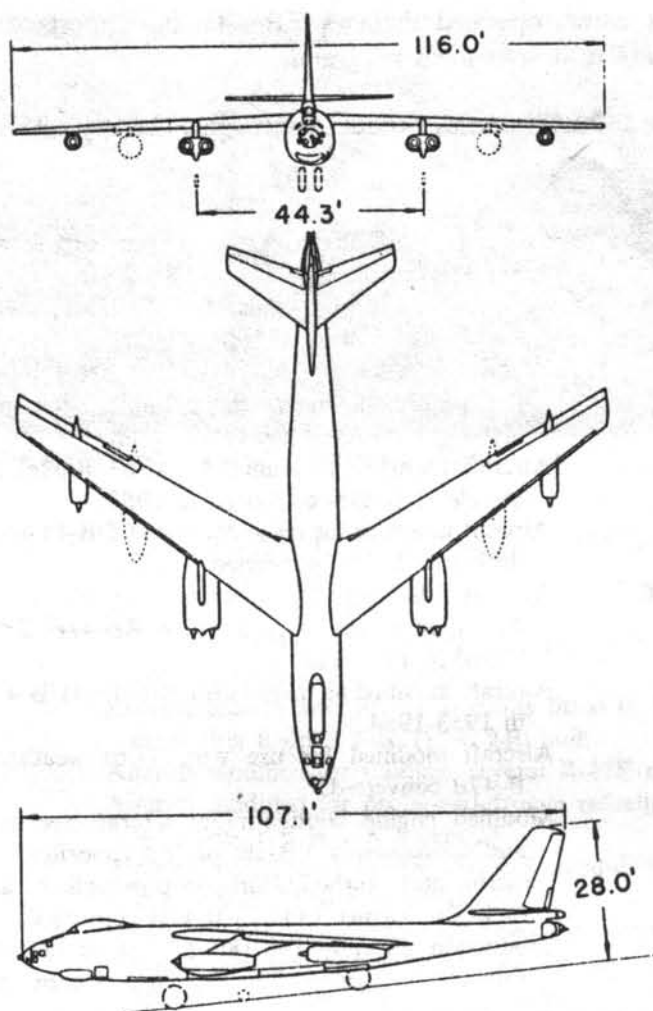
The U.S. Army Air Forces issued its first requirement for a jet bomber late in 1943. Boeing initiated several designs, with post-war examination of German aircraft data indicating the advantages of the swept-wing configurations. Subsequently, Boeing developed a design with thin, laminar-flow wings swept back 35 degrees, with six turbojet engines mounted in twin and single pods beneath the wings. These were supplemented with provisions for solid-fuel rockets in the rear fuselage for accelerated takeoffs. (These rockets were incorrectly designated as JATO for *Jet Assisted TakeOff*.) The main landing gear was fitted in tandem, extending from the fuselage, with smaller wheels on outriggers extending from the wings. Between the main landing gear wells was the single bomb bay, which could accommodate a single gravity nuclear weapon or 10,000 pounds of conventional bombs (up to 22,000 pounds maximum in overload condition).

Gun armament in some B-47As and most B-47Bs consisted of two .50-caliber MGs in the remotely controlled tail turret (controlled by the copilot/weaponeer). Early in the B-47E program two 20-mm cannon were fitted in the tail.

Boeing production of the B-47 was supplemented by Douglas and Lockheed assembly lines to produce more of these aircraft than any other Western bomber of the post-World War II period. However, the exact number produced cannot be fully documented. Official reports list from about 2,000 B-47s to the 2,258 tabulated below, the differences being in the estimates of B-47B and B-47E aircraft.

The number of B-47s in service peaked in early 1957 with 28 medium bomb wings (each with 45 UE) flying 1,260 B-47s, with some 300 reconnaissance





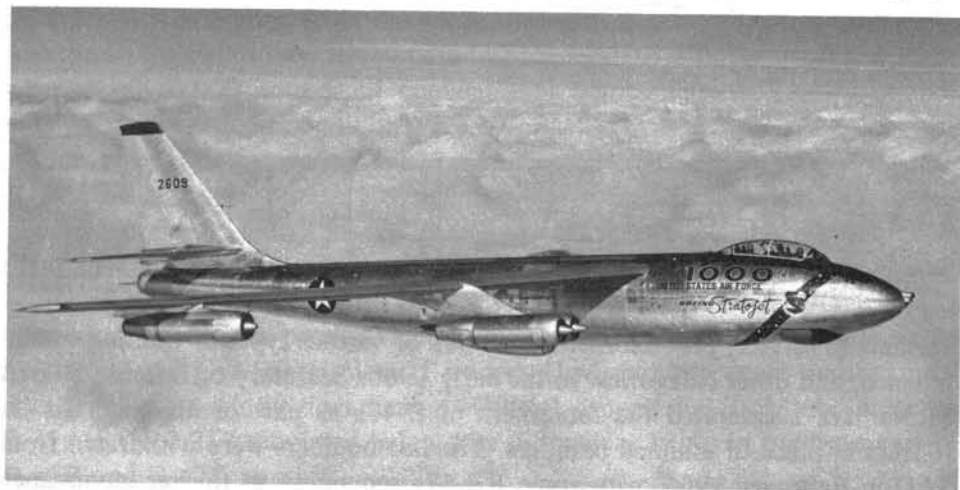
variants in service, plus another 300 B-47s of various types in training, maintenance, and other categories. In the early 1960s Secretary of Defense Robert McNamara accelerated the retirement of B-47s as part of his emphasis on ICBMs in place of manned bombers. The last bombers were withdrawn from SAC in February 1966, with some RB-47s remaining in the reconnaissance role with SAC until December of the following year. However, during the next decade the U.S. Navy took three B-47Es from storage and, with con-

tractor flight crews, operated them as EB-47Es in support of missile and electronic warfare development programs.

*Status:* Retired; 2,048 aircraft produced through February 1957.

*Variants:*

<b>XB-47</b>	Prototype; 125,000 lbs. gross; 3 crew; first flight 17 December 1947; 2 built.
<b>B-47A</b>	Service test aircraft; similar to XB-47; 160,000 lbs. gross; first flight 25 June 1950; 10 built.
<b>B-47B</b>	Production aircraft; provision for $2 \times 1,500$ -gallon wing tanks and in-flight refueling; 180,000 lbs. gross; 3 crew; first flight 26 April 1951; 399 built.
<b>YDB-47B</b>	Aircraft modified to launch GAM-63 Rascal air-to-surface missile; 1 B-47B converted in 1953.
<b>DB-47B</b>	Aircraft modified for radio control of QB-47 and other target drones; 2 B-47B converted.
<b>YRB/RB-47B</b>	Aircraft fitted with 8-camera reconnaissance pod in bomb bay; used mostly as trainers for RB-47E; 24 B-47B converted in 1953-1954.
<b>TB-47B</b>	Aircraft modified as trainers for B-47E; 51 B-47B converted in 1953-1954.
<b>WB-47B</b>	Aircraft modified for use with Tiros weather satellite; 1 B-47B converted.
<b>YB-47C</b>	Modified engine configuration; aircraft reclassified XB-56 and subsequently YB-56; project cancelled.
<b>XB-47D</b>	Experimental turbojet/turboprop-propelled aircraft; first flight 26 August 1955; 2 B-47B converted.
<b>B-47E</b>	Production aircraft; 198,180 lbs. gross takeoff (could be refueled in flight to 206,700 lbs.); 3 crew; first flight 30



The 1,000th B-47 produced for the Strategic Air Command is shown with its special markings as well as the SAC shield and band on its nose. This aircraft flew for the first time exactly seven years after the first XB-47 took to the skies. (Boeing photo)



**XB-47D; standard B-47B fitted with two T49 turboprop engines.**

	January 1953; 1,350 built (including 274 by Douglas and 385 by Lockheed).
<b>NB-47E</b>	Research aircraft; 2 B-47E converted.
<b>QB-47E</b>	Aircraft modified as "non-destruct" radio-controlled target drones; 14 B-47E converted.
<b>RB-47E</b>	Reconnaissance aircraft; 11 cameras fitted in bomb bay; 3 crew; first flight 3 July 1953; 240 built.
<b>ERB/RB-47H</b>	Aircraft modified for training; several B-47E converted.
<b>YB-47F</b>	Aircraft modified for probe-and-drogue refueling from KB-47G tanker; 1 B-47B converted.
<b>KB-47G</b>	Aircraft modified as tanker for probe-and-drogue refueling experiments; 1 B-47B converted.
<b>ERB-RB/47H</b>	Special reconnaissance aircraft fitted for electronic surveillance; compartment in bomb bay housed equipment and operators; 220,000 lbs. gross takeoff (could be refueled in flight to 221,000 lbs.); 5-6 crew; first flight June 1955; 32 built.
<b>YB-47J</b>	Aircraft fitted to evaluate advanced bombing-navigation radar; 1 B-47E converted.
<b>RB-47K</b>	Aircraft fitted for weather and photographic reconnaissance; similar to RB-47E; 15 built.
<b>EB-47L</b>	Aircraft modified for communications relay; 35 B-47E converted in 1963.
<b>CL-52</b>	Aircraft transferred to Canada to test turbojet engine (fitted on starboard side of fuselage); 1 B-47B transferred in 1956.

#### *Characteristics: (B-47E-II)*

<b>Crew</b>	3 (pilot, copilot, bombardier/navigator)
<b>Weight</b>	80,756 lbs. empty; 124,875 lbs. combat takeoff; 221,000 lbs. maximum (refueled in flight)

<b>Dimensions</b>	Span 116 ft., length 107.1 ft., height 28 ft., wing area 1,428 ft. <sup>2</sup>
<b>Engines</b>	6 General Electric J-47-GE-25 turbojet (7,200 lbs. static thrust each for 5 minutes; 5,670 lbst continuous)
<b>Fuel</b>	14,610 gallons internal plus 3,390 gallons in drop tanks
<b>Speed</b>	606 mph at 16,300 ft. maximum; 557 mph at 38,500 ft. cruise
<b>Range</b>	2,014-mile radius with 10,000-lb. bombs; 4,647-mile ferry range
<b>Ceiling</b>	47,000 ft.
<b>Payload</b>	1 gravity nuclear weapon or 3 to 6 $\times$ 2,000-lb. bombs or 6 to 18 $\times$ 1,000-lb. bombs or 13 to 28 $\times$ 500-lb. bombs (the larger bomb loads could be carried in B-47E No. 617 and later aircraft with modification kit)
<b>Guns</b>	2 $\times$ 20-mm cannon with 350 rounds per barrel
<b>Electronics</b>	K-4A bombing-navigation radar, A-5 or MD-4 tail gunfire control radar, APS-54 warning radar

# B-52

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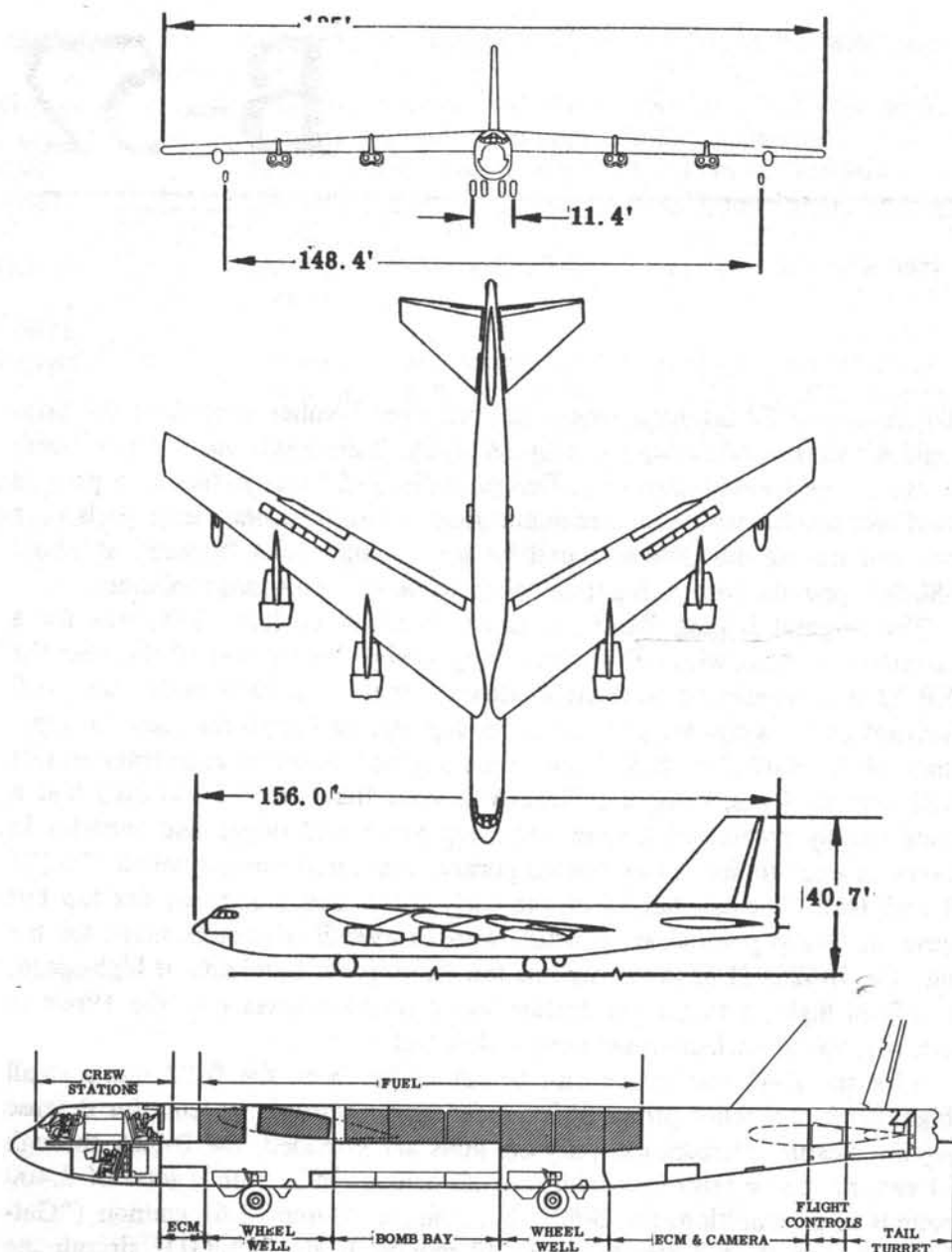
The Boeing B-52 Stratofortress is the principal bomber aircraft of the Strategic Air Command, being flown by 18 of SAC's 20 bomb wings. (Two bomb wings fly the FB-111 aircraft). Design of the B-52 was initiated to provide an all-jet bomber with intercontinental ranges. However, the range goals were not met during design and the B-52 gross weight was "frozen" at about 480,000 pounds, with in-flight refueling to permit long-range missions.

The original Boeing XB-52 contract, awarded in July 1948, was for a turboprop aircraft with a 20-degree wing sweep. By the end of the year the XB-52 was redesigned with eight turbojet engines in twin pods slung well forward under wings swept back at 35 degrees, similar to the basic arrangement of the B-47. The B-52 became the largest bomber to ever enter service with any air force, being significantly heavier than the B-36 (which had a considerably greater wing span and wing area) and larger and superior in every respect to its Soviet contemporary, the turboprop-propelled Tu-20/Tu-95 Bear. The tall tail fin of the early B-52s had a narrow, flat top but gave an almost pointed appearance, with an overall triangular shape for the fin. The B-52G/H have shorter tail fins for improved stability at high-speed, low-level flight, a target penetration tactic found necessary in the 1960s to counter Soviet surface-to-air missile defenses.

Like the B-47 and in contrast to earlier bombers, the B-52 has a small flight crew and relies primarily on speed and electronic systems for defense against hostile interceptors. Only tail guns are provided; the B-52A through G variants had a tail turret with four .50-caliber MGs with a total of 2,400 rounds of ammunition; the B-52H has a single 20-mm M-61 cannon ("Gatling" gun) in the tail turret with 1,242 rounds. In the B-52G/H aircraft the tail gunner has been moved from the tail position to the forward crew compartment.

The internal weapons bay was designed to carry up to 27,000 pounds of conventional 1,000-pound bombs or four nuclear gravity weapons (Mk-28, 41, 53, or 57). When modified, the weapons bay can hold over 40,000 pounds of bombs ( $42 \times 1,000\text{-lb.}$  or  $60 \times 500\text{-lb.}$ ). Wing pylons on the B-52D and later variants can carry air-to-surface missiles or, when modified, 18,000 pounds of bombs ( $24 \times 750\text{-lb.}$ ). Subsequently, some B-52Ds have been fitted to also carry the Navy's CAPTOR anti-submarine mine (approximately





2,000 pounds each), with eight in the weapons bay and 12 on wing pylons. In place of gravity bombs, the B-52G/H variants can carry eight SRAMs on a rotary launcher in the weapons bay and another 12 SRAMs on the wing pylons. The Air Launched Cruise Missile (ALCM) now under development could be carried in place of SRAMs. The B-52H was intended to carry four of the ill-fated Skybolt ballistic missiles (GAM-77) on wing pylons.

*Status:* Operational from 1955 onward; 744 aircraft produced through June 1962.



**B-52H Stratofortress in Vietnam-era camouflage**

*Variants:*

- XB-52**                      Prototype with pilots seated in tandem under bubble canopy; 390,000 lbs. gross; 5 crew; first flight 2 October 1952 (after YB-52); 1 built.
- YB-52**                      Prototype; similar arrangement to XB-52; first flight 15 April 1952; 1 built.
- B-52A**                      Development aircraft; side-by-side pilot seating; fixed wing tanks (as in later aircraft); first with tail guns; 415,000 lbs. gross; 6 crew; first flight 5 August 1954; 3 built. 1 converted to NB-52A to air launch X-15 hypersonic research aircraft.
- B-52B**                      Production aircraft; 400,000 lbs. gross; 8 crew; first flight 25 January 1955; 50 built with last 27 convertible to RB-52B with removable weapons bay pod fitted with cameras, electronic sensors, ECM, and provision for 2 operators. 1 converted to NB-52B to carry X-15 aircraft.
- B-52C**                      Production aircraft; increased fuel; 450,000 lbs. gross; 6 crew; first flight 9 March 1956; 35 built.
- B-52D**                      Production aircraft; improved gunfire control system; 450,000 lbs. gross; 6 crew; first flight 14 May 1956; 170 built.
- B-52E**                      Production aircraft; improved ASQ-38 bombing-navigation system; 450,000 lbs. gross; 6 crew; first flight 3 October 1957; 100 built.
- B-52F**                      Production aircraft; modified engine pods and wing design; 450,000 lbs. gross; 6 crew; first flight 6 May 1958; 89 built.
- B-52G**                      Production aircraft; increased fuel; shorter tail fin; tail gunner moved forward; improved ASG-15 gun control system; 480,000 lbs. gross; 6 crew; first flight 27 October 1958; 193 built.



**YB-52 Stratofortress; note early tandem cockpit (Boeing photo)**

**B-52H**                      Production aircraft; turbofan engines (J57 series turbojet in all previous variants); tail cannon vice MGs; see data below; first flight 16 March 1961; 102 built.

*Characteristics: (B-52H)*

<b>Crew</b>	6 (pilot, copilot, navigator, bombardier-navigator, ECM operator, gunner)
<b>Weight</b>	172,740 lbs. empty; 306,358 lbs. combat; 488,000 lbs. maximum takeoff
<b>Dimensions</b>	Span 185 ft., length 156 ft., height 40.7 ft., wing area approx. 4,000 ft. <sup>2</sup>
<b>Engines</b>	8 Pratt & Whitney TF33-P-3 turbofans (17,000 lbs. static thrust each for 5 minutes; 14,500 lbst continuous)
<b>Fuel</b>	46,400 gallons internal plus 1,400 gallons external in fixed wing tanks
<b>Speed</b>	630 mph at 40,000 ft. (Mach 0.95); 645 mph at sea level (Mach 0.85); 565 mph cruise at 36,000 ft.
<b>Range</b>	4,261-mile radius with 40,000-lb. weapons load; 4,606-mile radius with 20,000-lb. load; 4,809-mile radius with 10,000-lb. load with maximum takeoff weight of 488,000 lbs.; 10,083-mile ferry range
<b>Ceiling</b>	55,000 ft.
<b>Payload</b>	27 × 1,000-lb. bombs or 27 × 750-lb. bombs or 8 × SRAM or 8 × ALCM or 4 gravity nuclear weapons internal; plus 12 × SRAM or 12 × ALCM on wing pylons (no bombs)
<b>Guns</b>	1 × 20-mm M-61 rotary-barrel cannon with 1,242 rounds ammunition
<b>Electronics</b>	AAQ-6 forward-looking infrared, ALQ-117 defensive jammer, ALQ-122 false target generator, ALQ-153 tail warning radar, ALQ-155 ECM, ALT-28 defensive jammer, ASG-21 gunfire control radar, ASQ-38 bombing-navigation radar, AVQ-22 low-light-level television.

# B-58

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The Convair B-58 Hustler is the only supersonic strategic bomber to enter squadron service in the West. It was characterized by its small size, advanced design with weapons and sensors carried in an external pod, and comparatively brief service career. The design evolved from an Air Force competition in 1949 which sought to develop a supersonic strategic bomber and reconnaissance aircraft. A relatively small number of B-58s served in SAC for the decade of the 1960s. Although the sleek-lined aircraft set several speed records, it was not well liked because of its comparatively short range and the small numbers procured required a disproportionate share SAC support resources. And, reportedly, General LeMay, after flying the B-58, declared it was too small . . . "it didn't fit my 'arse'."

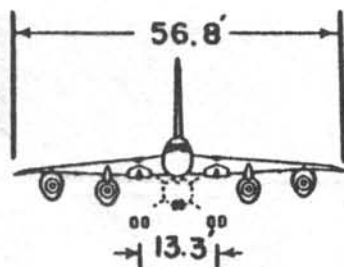
The aircraft had a long, sleek fuselage and delta wing. The fuselage, with a needle nose, had an area-rule or "Coke bottle" configuration. The delta wing alleviated the need for horizontal tail surfaces. The four turbojet engines, originally proposed in twin pods, were mounted well forward on the wing, in single nacelles. In an effort to minimize aircraft size and improve performance, an internal weapons bay was deleted in favor of an external pod that could carry fuel, sensors, electronic countermeasures, and nuclear weapons. In the strategic attack role the B-58's MB-1C pod would carry fuel for the fuel for reaching the target and the nuclear weapon. The entire 62-foot pod would then be released over the target. Alternative pod concepts included cameras, EW and other special equipment in the upper half that would be retained, and the weapon and fuel tank in the lower half.

The three-man crew was seated in tandem cockpits, with a dual-control variant also being procured in small numbers. A single 20-mm rotary-barrel cannon ("Gatling" gun) was fitted in the tail.

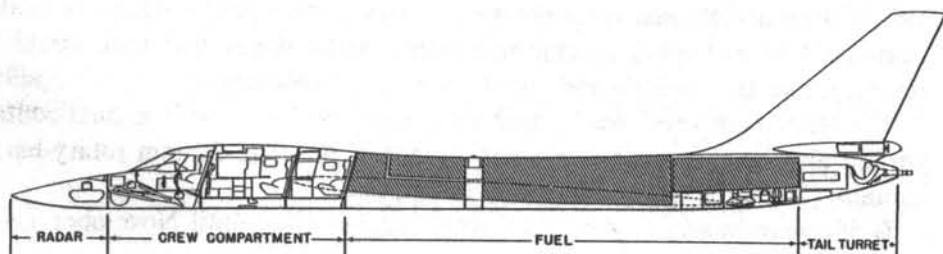
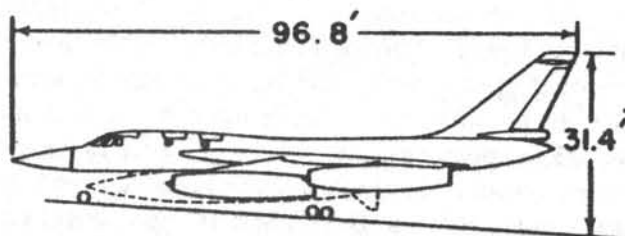
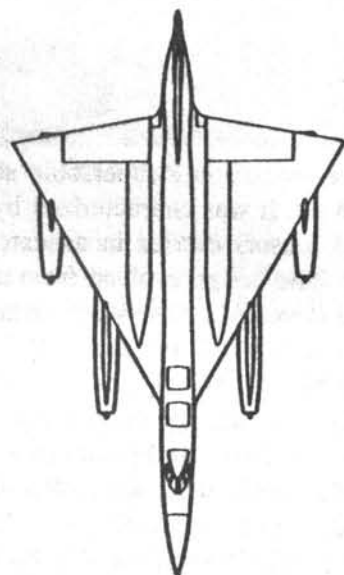
B-58s were in service with SAC from August 1960 until November 1969.

*Designation:* The B-58 was the last B-series aircraft to enter SAC operational service at the time this book went to press.

*Status:* Retired; 116 built through October 1962.



0 10 20



*Variants:*

**XB-58**

**YB-58A**

**B-58A**

Prototype; first flight 11 November 1956; 2 built.

Service test; 28 built.

Production aircraft; first flight September 1959; 86 built.





**Prototype B-58 Hustler**

- NB-58A** Test vehicle for J93 engine of XB-70 (installed in centerline nacelle); 1 converted from B-58A.
- TB-58A** Training aircraft; dual controls fitted in two front cockpits; operational equipment deleted; first flight 10 May 1960; 8 converted from YB-58A.

*Characteristics: (B-58A)*

- Crew** 3 (pilot, navigator-bombardier, defensive systems operator)
- Weight** 55,560 lbs. empty; 163,000 lbs. maximum takeoff; 167,321 lbs. maximum (refueled in flight); weights without MB-1C mission pod, which weighed 8,555 lbs.
- Dimensions** Span 56.8 ft., length 96.8 ft., height 31.4 ft., wing area 1,542.5 ft.<sup>2</sup>
- Engines** 4 General Electric J79-GE-5B turbojet (15,500 lbs. static thrust with afterburner 120 minutes; 10,300 lbst continuous)
- Fuel** 10,924 gallons internal plus 4,156 gallons in MB-1C mission pod
- Speed** 1,419 mph at 65,000 ft. (Mach 2) maximum; 690 mph at sea level (Mach 0.92) maximum; over 600 mph cruise (Mach 0.92)
- Range** 1,612-mile radius on high-altitude mission; 2,470-mile radius on maximum-range mission; 4,721-mile ferry range
- Ceiling** Approximately 70,000 ft.; approximately 63,000 ft. in high-altitude combat mission
- Payload** MB-1C mission pod with nuclear weapon (W39Y1-1)
- Guns** 1 × 20-mm M-61 rotary-barrel cannon with 1,120 rounds ammunition
- Electronics** ALQ-16 radar track breaker, MD-7 gunfire control radar, ASQ-42 weapons control system



**B-58 Hustler being fitted with lower portion of fuel-weapons pod; the upper portion of the pod has already been attached to the aircraft. Note tandem seating arrangement for three-man crew. (Convair/General Dynamics photo)**

# B-70

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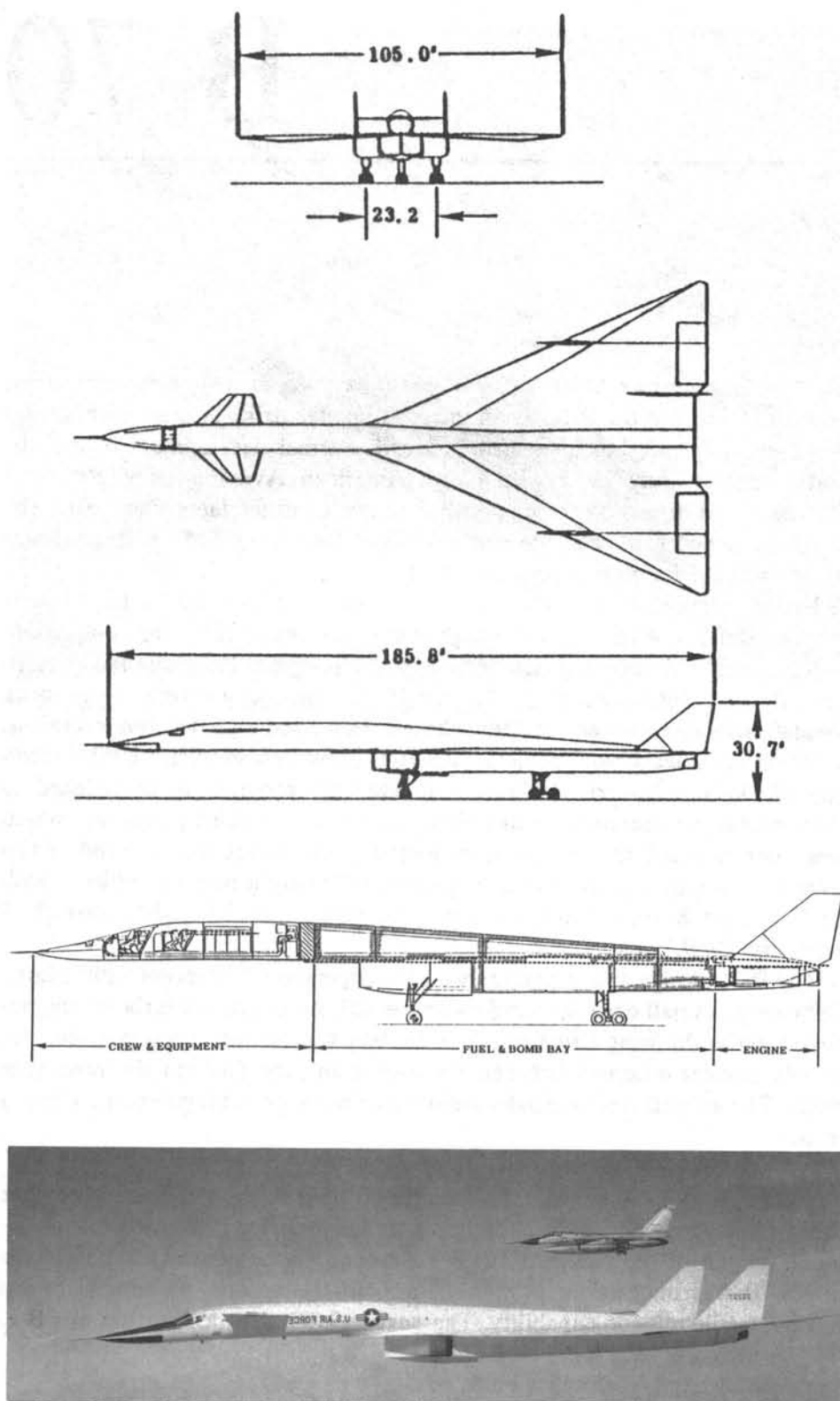
The North American B-70 Valkyrie was developed as a supersonic strategic bomber to succeed the B-52 as an intercontinental strike aircraft with similar range and payload, but a supersonic speed. Formal development of the aircraft began in July 1955 with North American Aviation (now Rockwell International) receiving a competitive design contract later that year. The firm was named winner of the competition in December 1957 with contracts being awarded for prototype fabrication.

Full development of the B-70 was cancelled late in 1959 by the Department of Defense with only a single prototype being approved for completion. Subsequently, Air Force efforts to restart the program led to its being reapproved as a bomber aircraft in October 1960. Then, as a counter to pressure to again halt the program, in 1961 the Air Force redesignated the aircraft as a "reconnaissance-strike" vehicle (RS-70). However, in April 1961, Secretary of Defense Robert McNamara directed the program to be reduced to three prototype aircraft without military systems. The third prototype, which was later planned to have military systems, was cancelled in 1964. (The second prototype was destroyed in a crash following a mid-air collision with an F-104 on 8 June 1966; the first prototype made 83 flights through 4 February 1969.)

The B-70 design was a precursor of the supersonic transports with a large delta wing, a small canard wing forward, needle nose, and six turbojet engines nested under the wing structure. A bomb bay was to have been provided for gravity nuclear weapons between the engine intakes (behind the nose gear well). The aircraft was originally designed to burn special high-energy ("zip") fuels.

*Designation:* B-70 was the next sequential number in the Air Force's bomber series (following the RB-69, Air Force designation for a planned reconnaissance version of the Navy's P2V/P-2 Neptune patrol aircraft). The change to RS-70 was undertaken primarily for political reasons, to demonstrate a more-versatile mission capability. The next U.S. bomber designation was B-1.

*Status:* Retired; 2 prototypes built.



### *Variants:*

<b>XB-70A</b>	#1 Prototype aircraft; no weapons capability; 2 crew; first flight 21 September 1964.
<b>XB-70A</b>	#2 Prototype aircraft similar to #1; first flight 17 July 1965.
<b>XB-70B</b>	Prototype aircraft with military systems; 4 crew; cancelled 1964.

### *Characteristics: (XB-70A)*

<b>Crew</b>	2 (pilot, copilot)
<b>Weight</b>	231,215 lbs. empty; 341,096 lbs. combat; 521,056 lbs. maximum takeoff
<b>Dimensions</b>	Span 105 ft., length 185.8 ft., height 30.7 ft.
<b>Engines</b>	6 General Electric YJ93-GE-3 turbojet (28,000 lbs. static thrust each maximum continuous; 17,000 lbst normal continuous)
<b>Fuel</b>	43,646 gallons internal
<b>Speed</b>	2,300 mph at 65,000 ft. (Mach 3.0); 1,150 mph at 30,000 ft. (Mach. 1.5)
<b>Range</b>	4,291-mile range with combat payload
<b>Ceiling</b>	Approximately 72,500 ft.
<b>Payload</b>	Gravity nuclear weapons (25,000 lbs. maximum)
<b>Guns</b>	None
<b>Electronics</b>	ASQ-28 bombing-navigation radar

# FB-111

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The General Dynamics FB-111 is the strategic attack variant of the F-111 strike fighter, known earlier as the TFX. The FB-111, flown by two SAC bomb wings, serves with the B-52 as the nation's strategic bomber force. The Department of Defense originally planned to procure 210 FB-111 aircraft to replace the older B-52C/F and B-58 bombers; however, production was halted at 76 aircraft because of budget constraints.

The FB-111's wings can sweep from a fully extended position (16-degree sweep) for takeoff, landing, and cruise flight, to a swept-back position (72.5-degrees) for high speed flight. The aircraft has twin engines and a two-man crew in side-by-side seating. Weapons are carried in an internal weapons bay and on four wing pylons. Two additional pylons can be attached to the outer wing sections for subsonic flight.

The principal differences between the F-111A and FB-111A are engines, higher gross weight and 3.5-foot wingtip extensions on the bomber variant, plus additional electronics.

*Designation:* The FB-111 is the only USAF "bomber" to be designated in the fighter series. F-111 was the highest number assigned in the USAF fighter series, with the "next" fighter being the F-1 (actually the Navy FJ Fury, redesignated in 1962 in a joint USAF-Navy scheme).

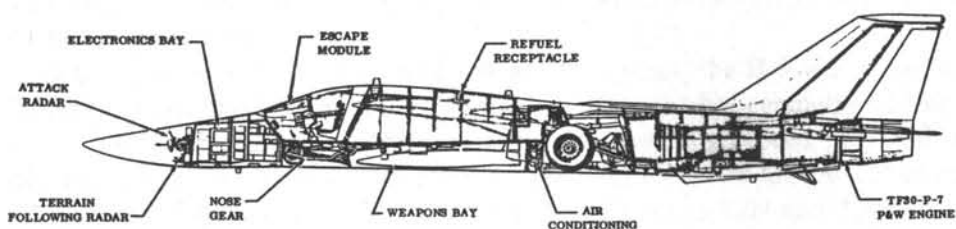
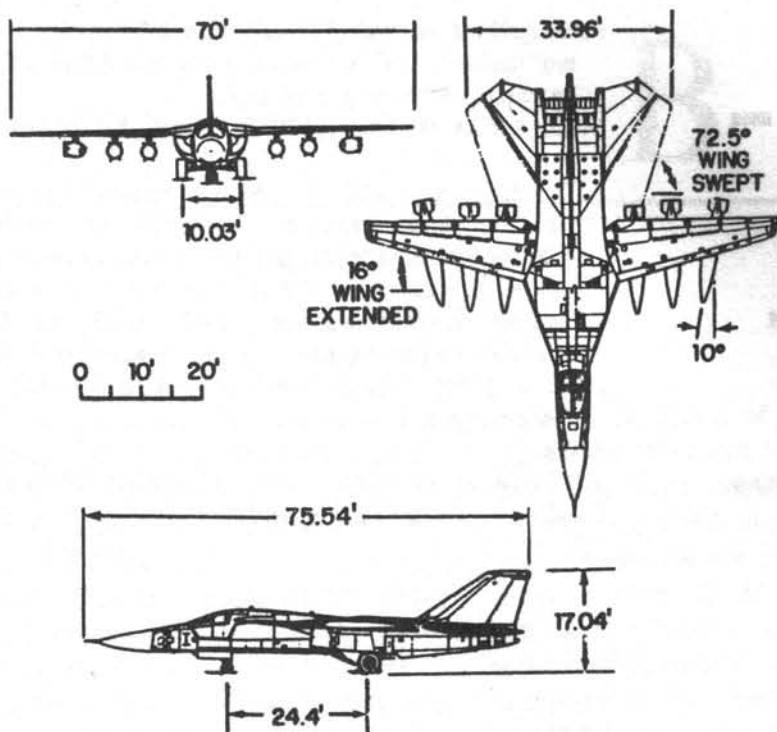
*Status:* Operational; 76 aircraft produced through June 1971.

## *Variants:*

<b>FB-111A</b>	Production aircraft; first flight 30 July 1967; 76 built.
<b>FB-111B</b>	Proposed conversion of FB-111A to improve strike capability; aircraft would have been lengthened; proposal cancelled in 1979.
<b>FB-111C</b>	Proposed conversion of F-111D* tactical aircraft to improve strike capability; aircraft would have been lengthened; proposal cancelled in 1979.
<b>FB-111D</b>	Not used.
<b>FB-111E</b>	Not used.

\*Tactical variants developed were F-111A, F-111B (U.S. Navy), F-111C (Australia), F-111D, F-111E, and F-111F, with some EF and RF configurations.





**FB-111F**  
**FB-111G**  
**FB-111H**

Not used.

Not used.

Proposed improved strategic strike version; span 44.8 swept; length 88.2 ft.; 2 F101-GE-100 turbofan engines; 51,832 lbs. empty, 140,000 lbs. maximum takeoff, 155,000 lbs. maximum inflight; weapons bay can carry five weapons plus four on wing pylons and up to six conformally on fuselage stations (maximum of 12 SRAMs).

### Characteristics: (FB-111A)

<b>Crew</b>	2 (pilot, copilot)
<b>Weight</b>	47,481 lbs. empty; 70,380 lbs. combat; 119,243 lbs. maximum takeoff
<b>Dimensions</b>	Span 70 ft. extended, 33.96 ft. fully swept, length 75.54 ft., height 17 ft.
<b>Engines</b>	2 Pratt & Whitney TF30-P-7 turbofan (20,350 lbs. static thrust for 45 minutes; 10,800 lbst continuous)

<b>Fuel</b>	5,185 gallons internal; 585 gallons can be carried in weapon bay tanks in lieu of internal weapons; 3,600 gallons can be carried in 6 wing drop tanks
<b>Speed</b>	Mach 2.2 at 40,000-60,000 ft.; Mach 1.1 at sea level at combat weight
<b>Range</b>	3,077-mile radius with 4 × SRAM missiles (basic mission with low-level penetration); 3,759-mile radius with 4 × SRAM missiles (high-level maximum range mission)
<b>Ceiling</b>	60,000+ ft. maximum; 35,900 ft. high-level mission
<b>Payload</b>	2 gravity nuclear weapons B-43, B-57, or B-61 or 2 × SRAM internal plus 4 gravity weapons or 4 × SRAM on wing pylons (only two inner pylons on each side can carry weapons)
<b>Guns</b>	None
<b>Electronics</b>	APQ-114 attack radar, APQ-134 terrain following radar, ALQ-94 electronic countermeasures.

# B-1

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The Rockwell International B-1 was the outcome of a succession of studies that began in 1962 and led to the 1965 requirement for an Advanced Manned Strategic Aircraft (AMSA) as a successor to the B-52. The Air Force awarded development contracts for the aircraft in June 1970, with North American Rockwell (now Rockwell International) being selected to build the airframe and General Electric to provide F101 turbofan engines for the aircraft. Initial planning provided for several development aircraft and an initial production program of 240 bombers, with first deliveries of production aircraft in mid-1979 and an initial SAC operational capability in mid-1982. The Department of Defense approved production of the B-1 on 2 December 1976, but the final go-ahead was delayed until 30 June 1977 when President Jimmy Carter cancelled production.

While smaller than the B-52 which it was to replace, the B-1 was designed to carry almost twice the weapons payload. It is a variable-geometry (swing-wing) aircraft designed from the outset for low-level, high-speed penetration of target areas. The aircraft configuration provides for short takeoff distances (7,500 feet when loaded compared to 9,500 feet for a B-52H and 7,400 feet for the smaller FB-111A) and a small radar cross section.

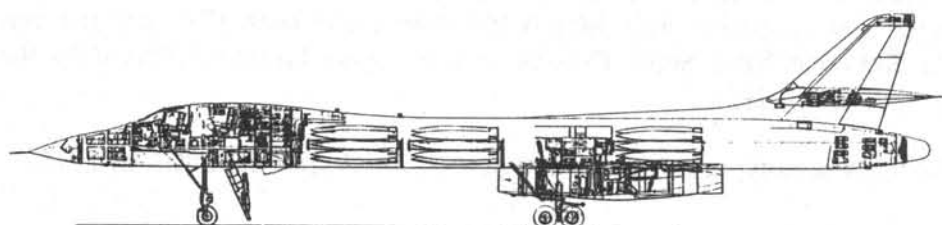
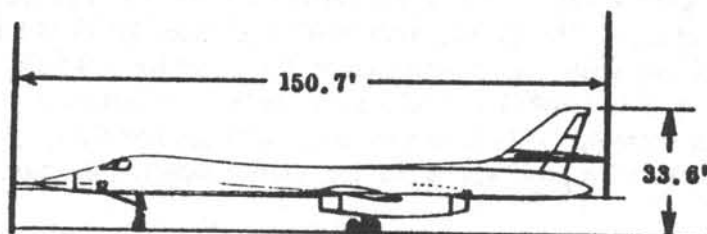
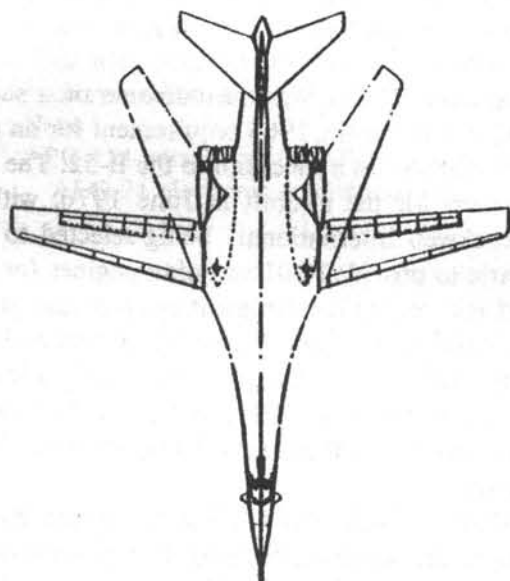
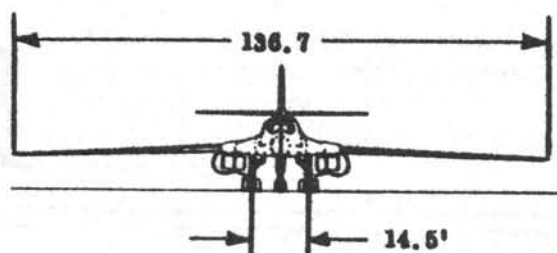
Four prototype B-1s have been built, with the first flying on 23 December 1974. The third prototype is the first aircraft with full electronic systems.

*Designation:* B-1 became this aircraft's designation because of the 1962 revision of U.S. military aircraft designations. At that time the higher aircraft series such as bombers (reaching B-70) were started over. (The first B-1 was the Keystone XB-1 Super Cyclops, a twin-engine biplane delivered to the U.S. Army in 1928.)

*Status:* 4 prototypes delivered; 240 production aircraft cancelled in 1977.

## *Characteristics:*

<b>Crew</b>	4 (pilot, copilot, offensive systems operator; defensive systems operator)
<b>Weight</b>	Approx. 175,000 lbs. empty; 395,000 lbs. maximum takeoff; 422,000 lbs. maximum inflight



#### Dimensions

Span 13.7 ft. extended, 78.2 ft. fully swept, length 150.2 ft., height 33.8 ft., wing area approx. 1,950 ft.<sup>2</sup>

#### Engines

4 General Electric F101 turbofan (approx. 30,000 lbs. static thrust each maximum)

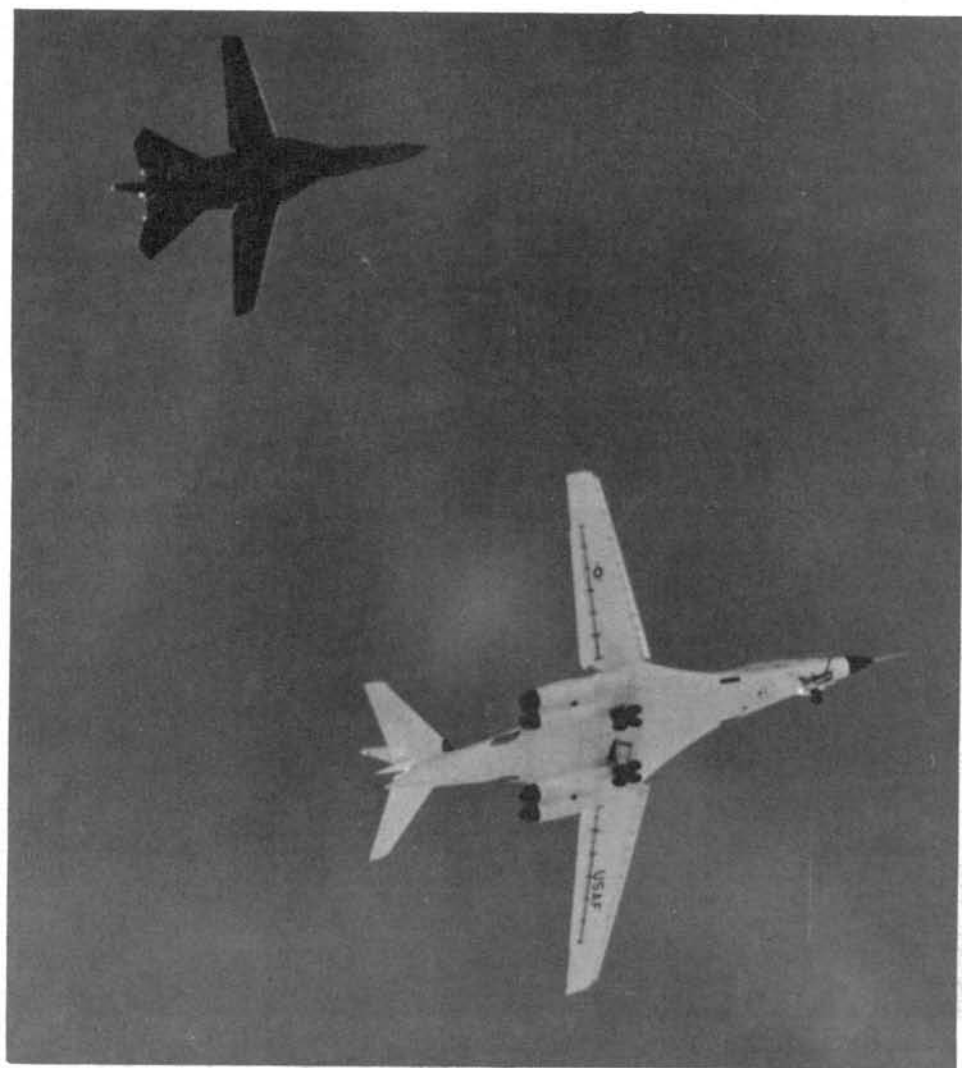
<b>Fuel</b>	Approx. 40,000 gallons
<b>Speed</b>	Mach 1.6 at cruise altitude; Mach 0.85 at 200 ft.
<b>Range</b>	Approx. 6,000 miles
<b>Ceiling</b>	
<b>Payload</b>	(All internal) 24 gravity nuclear weapons B-43, B-66, or B-77 or 24 $\times$ SRAM or 24 $\times$ ALCM or 84 $\times$ 500-lb. bombs
<b>Guns</b>	None
<b>Electronics</b>	APQ-144 forward-looking radar



**B-1 taking off on first flight, 23 December 1974.**



**The three B-1 prototypes.**



**B-1 with swing-wing F-111 fighter aircraft**





# Vulcan

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The Vulcan is Britain's largest operational combat aircraft. Produced by Avro (Hawker Siddeley after 1962) for the strategic bomber role, it is now employed as a general-purpose strike aircraft and is also flown in the strategic reconnaissance role. The Vulcan is the last "strategic" bomber to be flown by the RAF. The Vulcan was a familiar sight at SAC bases as the aircraft participated in weapon tests and SAC bombing competitions.

The RAF Strike Command currently has six squadrons flying 48 of the Vulcan B.2 variants and one reconnaissance squadron with eight SR.2 variants. The Vulcan has been replaced in the strategic deterrence role by the Royal Navy's four nuclear-propelled submarines armed with Polaris missiles.

The Vulcan was originally conceived as a triangular wing with no fuselage or additional "wings" except for fins and rudders. Subsequently, the forward compartments were extended into a fuselage while subsequent modifications, to provide electronic equipment, extended the tail structure. The aircraft's four turbojet engines are buried in the wing roots. No guns are fitted and weapons are carried internally or semi-recessed in the weapons bay. Avro was awarded a contract to produce the Vulcan in November 1947 with two prototypes being ordered in March 1949. Wing configurations were tested with small-scale aircraft.

*Status:* Operational from 1957 onward; 122 aircraft produced through 1964.

## *Variants:*

<b>Vulcan #1</b>	Prototype; first flight 30 August 1952.
<b>Vulcan #2</b>	Prototype; improved engines and wing; subsequently modified to test B.2 wing configuration; first flight 3 September 1953.
<b>Vulcan B.1</b>	Production aircraft; first flight 4 February 1955; 45 built.
<b>Vulcan B.1A</b>	Improved EW/ECM equipment with bulged tail cone (as B.2); several converted from B.1.
<b>Vulcan B.2</b>	Production aircraft; improved engines; designed to carry Blue Steel or Skybolt air-to-surface, stand-off missiles; all modified to conventional bombing capability (see below); first flight 19 August 1958; 75 built.
<b>Vulcan SR.2</b>	Strategic reconnaissance aircraft; several converted from B.2.



**Vulcan B.2 (Hawker Siddeley)**

*Characteristics: (B.2)*

<b>Crew</b>	5 (pilot, copilot, air electronics officer, navigator, radar operator)
<b>Weight</b>	200,000 lbs. maximum takeoff
<b>Dimensions</b>	Span 111 ft., length 99.9 ft., height 27.1 ft., wing area 3,964 ft. <sup>2</sup>
<b>Engines</b>	4 Bristol Siddeley Olympus Mk. 301 turbojets (20,000 lbs. static thrust each)
<b>Fuel</b>	70,000 lbs.
<b>Speed</b>	645 mph at 40,000 ft. (Mach 0.98)
<b>Range</b>	2,251-mile radius for low-level target attack; 3,046-mile radius for high-level target attack
<b>Ceiling</b>	55,000 ft.
<b>Payload</b>	21 × 1,000-lb. bombs
<b>Guns</b>	None
<b>Electronics</b>	

## Strategic Reconnaissance Aircraft

# U-2

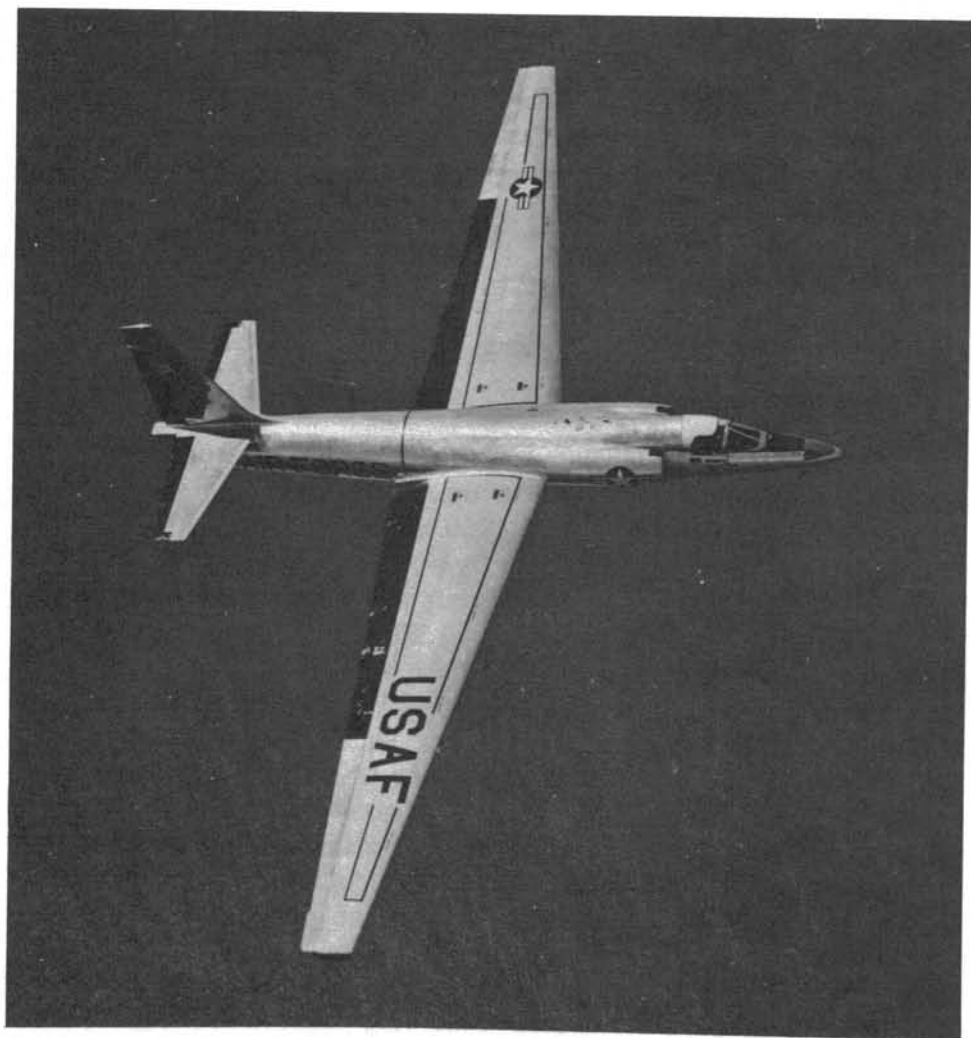
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The U-2 Lockheed is a high-altitude, low-speed strategic reconnaissance aircraft developed specifically for flights over the Soviet Union. These flights began in 1956 and ended on 1 May 1960, when a U-2 piloted by CIA pilot Francis Gary Powers was shot down by a surface-to-air missile while over the Soviet Union. Subsequently, the aircraft was flown over Mainland China (flown by American and Taiwanese pilots). The aircraft has been used in the strategic reconnaissance role by SAC since June 1957. Only a few U-2s remain in SAC service, having been succeeded by the SR-71 Blackbird.

Developed at the Lockheed "skunk works" under the direction of Clarence Kelly for the Central Intelligence Agency, the U-2 design was optimized for altitude and range. It has a glider-like configuration, with a long, straight wingspan and large wing area to provide lift with minimum drag in the thin air of the stratosphere. There is a single centerline main landing gear and a tailwheel; outriggers provide lateral support on the ground and are jettisoned after takeoff. Wingtip slides protect the wings during landing. The early U-2A is reported to have had a fuel capacity of 785 gallons and a range of 2,200 miles; "slipper" tanks of 105 gallons in the wing extended the range to 2,600 miles, and "wet wings" providing a total of 1,335 gallons further extended the range. Long-focus cameras and electronic collection equipment are fitted in the fuselage.

The latest U-2 configuration is the U-2R variant, which is significantly larger than the basic U-2 series (see Variants, below). An additional 25 aircraft of this configuration, to be designated TR-1, are planned for production in the early 1980s for tactical reconnaissance in Europe (23 single-place as U-2R and 2 dual-control trainers for an 18 UE squadron plus 7 aircraft for training and "pipeline").

At least six U-2s were transferred to Taiwan to avoid the problems of U.S. pilots being lost over Mainland China. Five of these aircraft were lost (at least three reportedly shot down over China). Sixteen additional U-2s flown by SAC and the CIA have been lost, including the U-2B downed by Soviet missiles in May 1960, and another destroyed by Soviet missiles over Cuba during the missile crisis of November 1962.



**U-2 fitted for high-altitude sampling of radioactive isotopes emitted into the stratosphere by atomic weapon tests.**



**U-2 in landing configuration with drag chute open.**

*Designation:* U-2 is in the utility series of U.S. military aircraft designations, sandwiched between the U-1, the DeHavilland Otter light cargo aircraft, and the U-3, a Cessna light cargo aircraft. Several later Army utility aircraft do have reconnaissance configurations (i.e., RU-8, RU-9, RU-21 series). TR indicates Tactical Reconnaissance.

*Status:* Operational; approximately 60 built.

*Variants:*

<b>U-2</b>	Prototype; first flight 1955; 2 built.
<b>U-2A/B</b>	Production aircraft; 48 built.
<b>WU-2A</b>	High-altitude research and weather reconnaissance aircraft; U-2A conversion.
<b>U-2C</b>	Aircraft with dorsal equipment fairing; U-2A conversion; 2 flown by NASA.
<b>U-2CT</b>	Dual-control training aircraft; 2 converted.
<b>U-2D</b>	Dual-control training aircraft; several U-2A/B converted plus 5 built.
<b>WU-2D</b>	High-altitude research aircraft; U-2D conversion.
<b>U-2EPX</b>	Proposed Navy ocean surveillance aircraft (Electronics-Patrol-Experimental); to have had APS-116 radar; at least 2 aircraft flew in Navy markings before this program was cancelled.
<b>U-2R</b>	Improved capability theater reconnaissance aircraft; span 103 ft., length 63 ft., height 16 ft.

*Characteristics:* (U-2B)

<b>Crew</b>	1 (pilot)
<b>Weight</b>	19,850 lbs. loaded
<b>Dimensions</b>	Span 80 ft., length 49.6 ft., height 13 ft., wing area approx. 565 ft. <sup>2</sup>
<b>Engines</b>	1 Pratt & Whitney J75-P-13 turbojet (approx. 17,000 lbs. static thrust)
<b>Fuel</b>	1,140 gallons internal plus 210 gallons in "slipper" tanks
<b>Speed</b>	528 mph maximum; 460 mph cruise
<b>Range</b>	Approx. 4,000+ miles
<b>Ceiling</b>	70,000+ ft.



# RB-57

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SAC flew two high-altitude, radar reconnaissance variants of the highly successful and ubiquitous Martin RB-57 Canberra from mid-1956 through 1960 (after which they continued in service with other USAF commands). The Canberra was Britain's first operational jet-propelled bomber; it was manufactured continuously for 12 years and has served a dozen nations in several roles. In the United States, Martin copied an English Electric Canberra B.2 to produce the B-57 as a tactical strike aircraft, with the first American-built unit flying on 20 July 1953. Subsequently, two strategic recce variants were manufactured. They retain the trim Canberra fuselage, but have disproportionately long wings and outsize engine nacelles. No weapons are carried. Six of the RB-57Ds were two-seat aircraft.

Wing structural problems grounded the RB-57Ds from 1963 to 1966. The RB-57F has a larger wing of an entirely new design (122 ft. span) and a pair of J60-P-9 turbojet engines in underwing pods (3,300 lbs. static thrust) to augment the two TF33-P-11 turbopfans (18,000 lbs. static thrust).

Two RB-57Ds were transferred to Taiwan for overflights of Mainland China. Not listed below are several RB-57 tactical reconnaissance variants. Some RB-57Fs were later modified for weather reconnaissance (WB-57F).

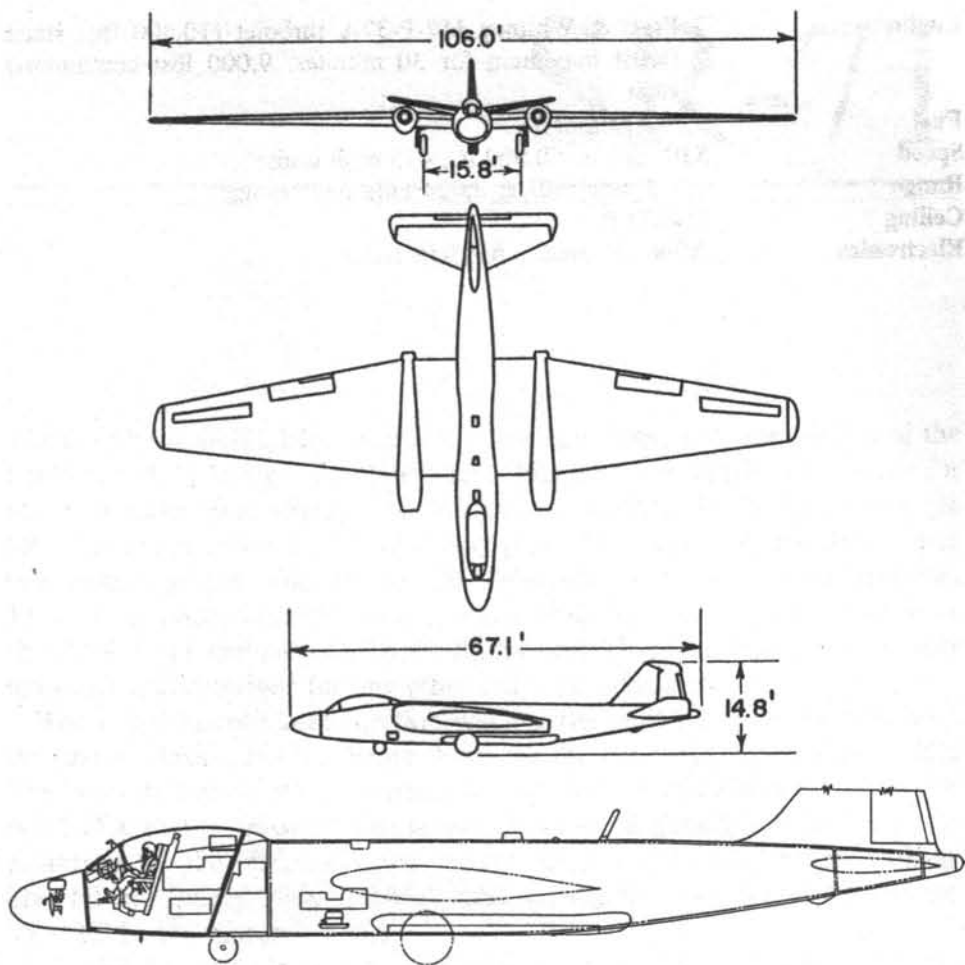
*Status:* Retired.

## *Variants:*

<b>RB-57D</b>	Reconnaissance variant; first flight January 1957; 20 built.
<b>RB-57F</b>	Reconnaissance variant; 2 crew; span 122 ft., wing area 2,000 ft. <sup>2</sup> ; Pratt & Whitney TF33 turbopfan engines; details differed; at least 23 converted from RB-57A, B-57B, and RB-57D by General Dynamics/Fort Worth.

## *Characteristics: (RB-57D)*

<b>Crew</b>	1 (pilot)
<b>Weight</b>	27,876 lbs. empty; 36,610 lbs. combat takeoff; 46,355 lbs. maximum takeoff
<b>Dimensions</b>	Span 106 ft., length 67.1 ft., height 14.8 ft., wing area 1,505 ft. <sup>2</sup>



RB-57D Canberra in foreground with conventional B-57 tactical bomber in background.

<b>Engines</b>	2 Pratt & Whitney J57-P-37A turbojet (10,500 lbs. static thrust maximum for 30 minutes; 9,000 lbst continuous) each
<b>Fuel</b>	2,740 gallons
<b>Speed</b>	530 mph at 60,000 ft.; 475 mph cruise
<b>Range</b>	1,512-mile radius; 3,024-mile ferry range
<b>Ceiling</b>	65,000 ft.
<b>Electronics</b>	APN-107 radar, APQ-56 radar

# SR-71

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The Lockheed SR-71 Blackbird is the strategic reconnaissance variant of the Lockheed A-11 design, developed as a high-altitude, Mach 3 platform for use as a fighter and strategic reconnaissance aircraft. In the latter role the SR-71 is the successor to the U-2 "spy plane." Existence of the aircraft was first acknowledged officially on 29 February 1964, when then-President Johnson announced that the aircraft had already been tested at speeds of more than 2,000 mph and altitudes above 70,000 feet. This performance was greater than that acknowledged for any other fully operational aircraft.

The initial aircraft configuration was for the fighter-interceptor role, with the first of three YF-12As being flown for the first time on 26 April 1962. This aircraft had an ASG-18 pulse doppler fire control radar for intercepts AIM-47A Falcon missiles. The fourth aircraft, designated YF-12C, was the prototype for the reconnaissance variant. Deliveries to SAC began with an SR-71B in January 1966. (NASA subsequently flew two YF-12As and the YF-12C in the research role.)

The SR-71, another product of Clarence Kelly's "skunk works" at Lockheed, is a delta-wing aircraft with a long, slender fuselage, with engines housed in large nacelles, mounted away from the pencil-shaped fuselage in the aircraft's delta wing. The aircraft has highly automated flight controls to assist control in the difficult high-altitude flight region. Construction is largely titanium with the surfaces painted with high-heat-emissive black paint to help retard the approximately 450- to 1,100-degree F. skin temperature of sustained supersonic flight at 80,000 feet. (The name Blackbird is derived from the paint scheme as well as the aircraft's clandestine mission.) The SR-71 is fitted for in-flight refueling.

The aircraft's mission equipment includes electronic intelligence collection and radar surveillance systems, plus photographic equipment that can survey 100,000 square miles of the earth's surface in one hour (from 80,000 feet).

*Designation:* SR-71 apparently was meant to be RS-71, following the aborted RS-70 designation developed from the B-70 aircraft. President Lyndon Johnson is believed to have transposed the RS-71 designation to SR-71 in his speech revealing the aircraft. SR is taken to mean Strategic Reconnaissance,



**SR-71 Blackbird.**



**SR-71 Blackbird taking off.**

although neither SR nor the SR-71 appear in the official Department of Defense list of aircraft designations. The letter R is indicated for aircraft with the basic mission of reconnaissance, but the prefix S would indicate anti-submarine. In theory, because the SR-71 evolved from the F-12 fighter aircraft, the reconnaissance variant should have been RF-12 or, in accord with the SR gambit, SR-12.

*Status:* Operational; approximately 30 believed to have been produced (in addition to 4 YF-12A/C prototypes); reportedly, at least 9 aircraft have been lost operationally (plus the third YF-12A).

### *Variants:*

<b>SR-71A</b>	Production aircraft; first flight 22 December 1964; estimated 25-30 built.
<b>SR-71B</b>	Two-seat training aircraft with elevated second cockpit; 2 built.
<b>SR-71C</b>	Two-seat training aircraft; 1 converted (after loss of SR-71B).

### *Characteristics: (SR-71A)*

<b>Crew</b>	2 (pilot, reconnaissance systems officer)
<b>Weight</b>	60,000 lbs. empty; up to 170,000 lbs. maximum
<b>Dimensions</b>	Span 55.6 ft., length 107.4 ft., height 18.5 ft., wing area 1,800 ft. <sup>2</sup>
<b>Engines</b>	2 Pratt & Whitney JT11D-20B (J58) high by-pass turbojets (approx. 34,000 lbs. static thrust each with afterburner; approx. 23,000 lbs. continuous)
<b>Fuel</b>	
<b>Speed</b>	1,980 mph at 78,740 ft. (Mach 3) maximum level speed; 1,320 mph at 30,000 ft. (Mach 2).
<b>Range</b>	Approx. 3,000 miles at Mach 3 at 78,740 ft.
<b>Ceiling</b>	80,000+ ft.
<b>Electronics</b>	



# RC-135

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The Boeing RC-135 Stratolifter is a high-altitude intelligence collection aircraft developed from the KC-135 Stratotanker, in turn developed from the Boeing 707 commercial transport. In addition to the special-mission RC-135s, SAC also operates the EC-135 airborne command post (Project Looking Glass), and operates all USAF KC-135 tanker aircraft. The RC-135 variants generally differ externally from the tanker variants by the use of turbofan (vice turbojet) engines, an in-flight refueling receptacle, and additional aerials and radomes. Internal differences include the RC-135's equipment to detect, intercept, analyze, and record electronic transmissions. Equipment configurations of individual aircraft vary. All have their flight station forward, followed by the equipment area, operator area, and rest area.

Not included in the SAC intelligence-reconnaissance aircraft is the RC-135A, a photographic mapping reconnaissance aircraft.

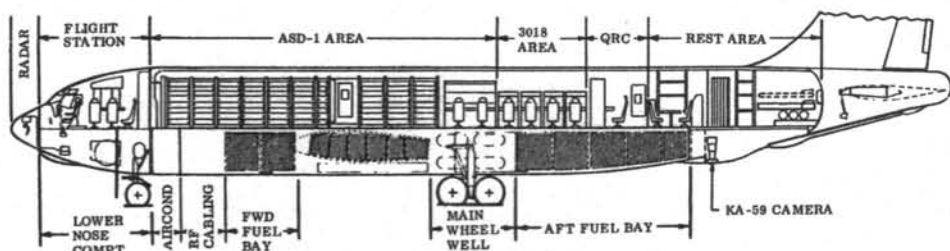
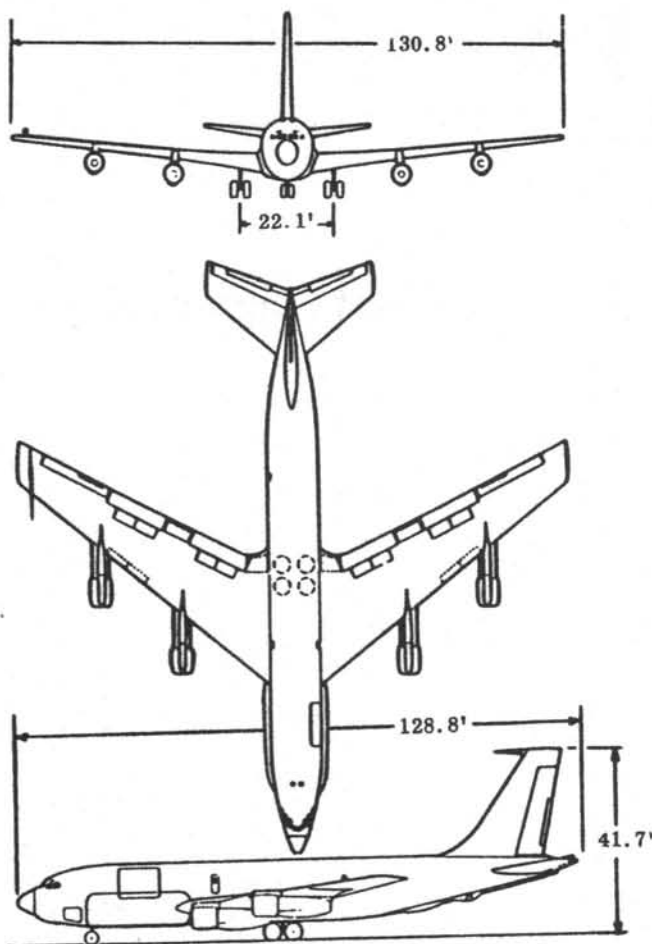
*Status:* Operational.

*Variants:*

<b>RC-135C</b>	Converted EC-135C; first flight April 1966.
<b>RC-135D</b>	Converted KC-135A (turbojet engines retained).
<b>RC-135M</b>	Converted C-135B.
<b>RC-135S</b>	Converted RC-135D.
<b>RC-135T</b>	Converted KC-135R (turbojet engines retained).

*Characteristics:* (RC-135C)

<b>Crew</b>	16 (pilot, copilot, relief pilot, 2 navigators, EW director, 2 EW operators, 3 EW specialists, 4 equipment operators, maintenance technician); provisions for 5 relief crewmen
<b>Weight</b>	147,859 lbs. empty; 221,040 lbs. combat takeoff; 299,000 lbs. maximum takeoff
<b>Dimensions</b>	Span 130.8 ft., length 135.1 ft., height 41.7 ft., wing area 2,433 ft. <sup>2</sup>



#### Engines

4 Pratt & Whitney TF33-P-9 turbofan (18,000 lbs. static thrust each maximum for 5 minutes; 16,400 lbst continuous)

#### Fuel

22,246 gallons (22,693 gallons for ferry mission with 4-man crew)

#### Speed

616 mph at 25,000 ft. (Mach 0.9); 560 mph cruise

#### Range

2,675-mile radius; 5,639-mile ferry range

#### Ceiling

40,600 ft.; approx. 35,000 ft., reconnaissance altitude

#### Electronics

ASD-1 electronic reconnaissance system, ALQ-70 ECM, ALA-6 direction finder, APR-17 reconnaissance set

ACM  
CONFERENCE

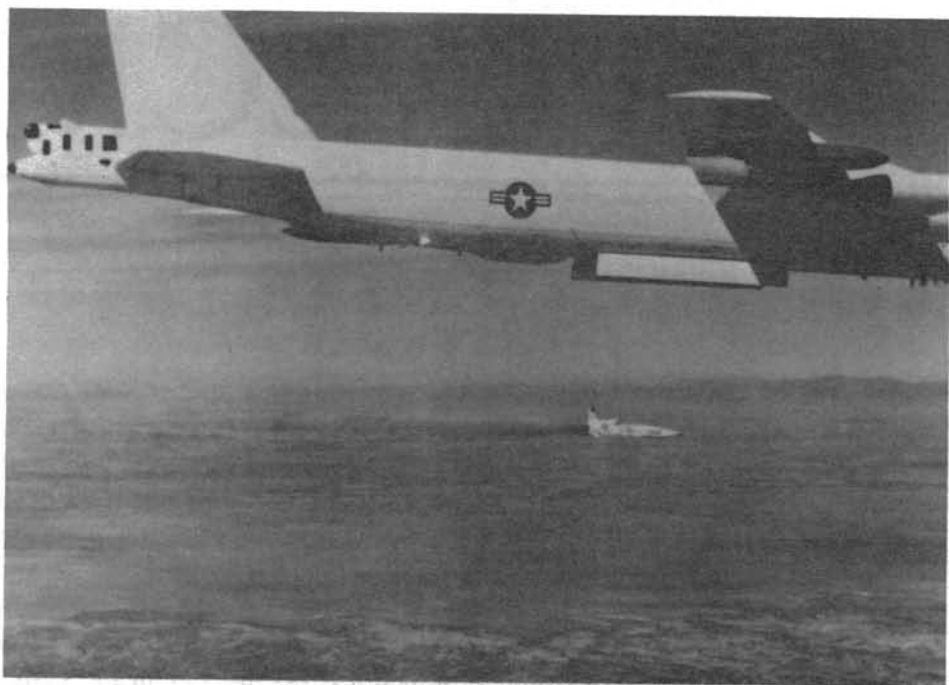
## Strategic Missiles

# ALCM

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The Air Launched Cruise Missile (ALCM), built by Boeing is an air-to-surface, stand-off missile being developed to increase the effective life of the 173 B-52G bombers flown by SAC. The ALCM AGM-86B has been developed in competition with the air-launched version of General Dynamics' AGM-109 Tomahawk naval missile. In addition to B-52Gs, the missile selected could later be used in B-52H bombers and specialized Cruise Missile Carrier Aircraft (CMCA). The latter aircraft, if developed, would be based on commercial aircraft designs. For example, a modified Boeing 747 in the CMCA configuration could carry 72 missiles on nine internal rotary launchers. Under current planning, about 170 B-52Gs would be modified to carry eight missiles on an internal rotary launcher and 12 additional missiles on two wing pylons. Initially, all B-52Gs would be fitted to carry external missiles (ALCMs or Tomahawks), with the first aircraft modification to be completed in 1981, with a full squadron (16 UE) operational in December 1982. All 170 aircraft should have the external missile capability by 1986, after which the rotary launchers will be fitted. The 170 B-52Gs will then be able to carry 20 missiles each by 1990. (Only 150 aircraft with 3,000 missiles would be operational, with the remaining aircraft in test, modernization, and other "pipeline" activities.)

The ALCM evolved from the Air Force's AGM-86A Subsonic Cruise Armed Decoy (SCAD), an improved Quail-type decoy that would also carry a nuclear warhead. When Congressional opposition to the weapon developed, the Air Force, in 1972, recast the effort as an attack missile, the ALCM (still designated AGM-86A). The AGM-86A could be fired as well as the AGM-69A SRAM missile from the same B-52G/H rotary launchers, although the latter missile is a ballistic weapon. The AGM-86A first flew in 1976. However, with the termination of the B-1 bomber program in 1977, the decision was made to develop the AGM-86B variant of the ALCM instead, which while not compatible with the B-1's weapon bays, could fit inside the B-52. It would fly more than twice the distance (1,550 miles for the -B compared to 745 miles for the -A version). The ALCM has a compact, almost cigar-like shape when stowed; upon release the engine inlet duct extends upward and stub wings and a tail fin and tailerons spring out. The missile has



**AGM-68A Air Launched Cruise Missile (ALCM) released from B-52.**



**AGM-86A ALCM with wings and tail fins extended.**

combination of inertial and Terrain Contour Matching (TERCOM) guidance and a Williams turbofan engine, the same guidance and propulsion in the Tomahawk but different mods. The ALCM is intended to be highly survivable against Soviet defenses despite its subsonic speed because of the very low ("treetop") altitude capability provided by TERCOM and the missile's low radar cross section.

*Status:* Development; first flight: 1979; competitor with AGM-109 Tomahawk for use by SAC B-52G force and possible advanced CMCA.

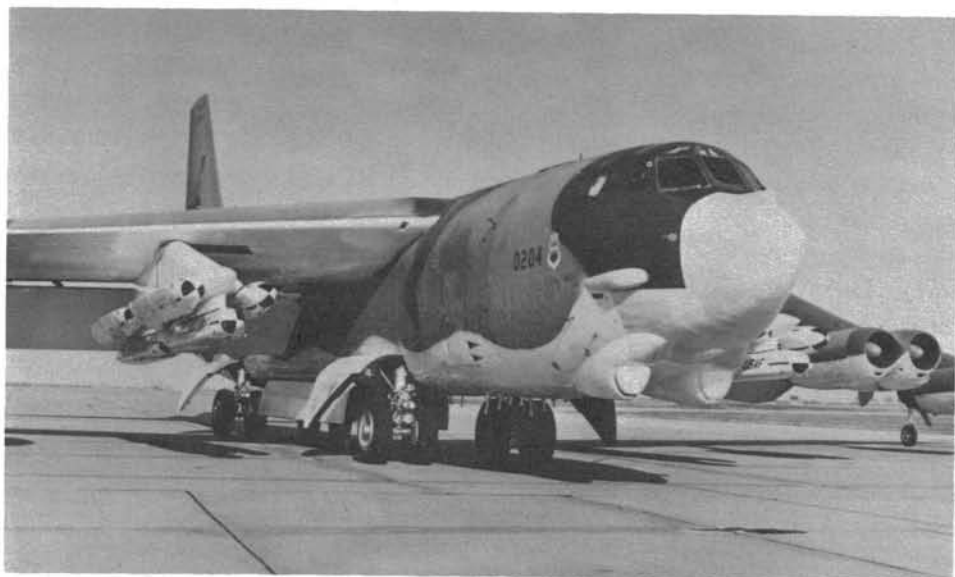
*Characteristics:* (AGM-86B)

<b>Weight</b>	2,800 lbs.
<b>Dimensions</b>	Span 12 ft., length 19.5 ft., diameter 2.1 ft.
<b>Propulsion</b>	1 Williams F107-WR-100 turbofan (approx. 600 lbs. static thrust)
<b>Range</b>	1,550 miles
<b>Warhead</b>	Nuclear (W-80, yield approx. 200 kilotons)

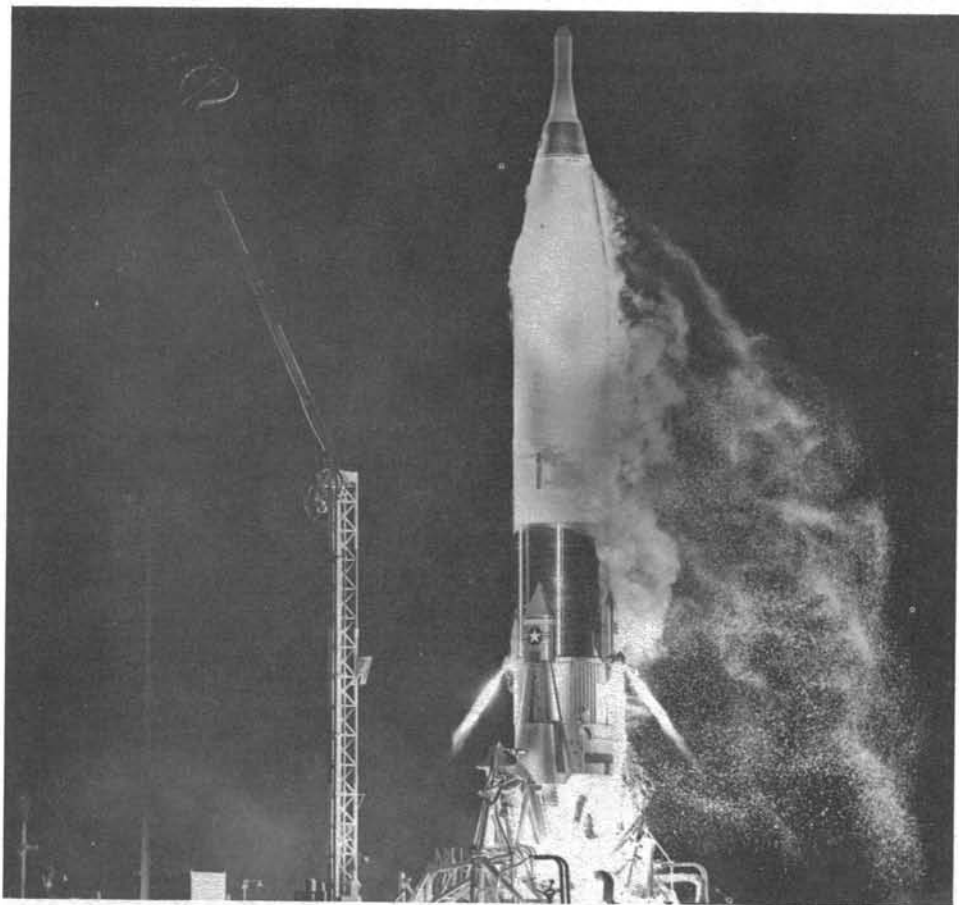


AGM-86A ALCM with wings and tail fin retracted for loading on B-52.





Six AGM-86B ALCMs fitted on pylons under each wing of a B-52G.



Atlas ICBM launch.

# Atlas

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The Atlas (SM-65/HGM-19), was the first U.S. Intercontinental Ballistic Missile (ICBM) to achieve operational status. The Convair division of General Dynamics had initiated the project in 1946, with a goal of delivering a nuclear warhead to targets 5,000 miles from the launching point. A USAF contract was not awarded for actual development of the missile until January 1955. Early Atlas variants reached a limited operational capability in September 1958, with the definitive Atlas-D becoming operational in 1960. The last Atlas missiles—E and F models—were phased out in 1965, having been replaced by Titan and Minuteman missiles.

The Atlas was considered a "1½ stage" missile, with two booster engines and one sustainer engine, plus two small vernier engines on the sides of the missile. All five engines drew propellants from the main tanks and all were ignited prior to liftoff.

After withdrawal from SAC, some 200 Atlas missiles were made available for use as space launch vehicles. (On 18 December 1958 an unarmed Atlas test vehicle was placed in orbit for 34 days in Project Score.)

*Designation:* Originally SM-65 (for Strategic Missile). Subsequently changed to HGM-19 (silo stored/surface attack/missile).

*Status:* Retired; first flight 1957; operational in SAC from 1958 until 1965.

## *Characteristics:*

<b>Weight</b>	Atlas-D 255,000 lbs.; Atlas-E/F 260,000 lbs.
<b>Dimensions</b>	Length 75.1 ft. with Mk 2 re-entry vehicle, 82.5 ft. with Mk 3 RV; diameter 120 in.
<b>Propulsion</b>	1 North American Rocketdyne LR89 sustainer engine (57,000 lbs. static thrust); 2 LR105 booster engines (150,000 lbst each); 2 LR101 vernier engines (1,000 lbst each); liquid oxygen fuel
<b>Range</b>	Atlas-D 10,360 miles; Atlas-E/F 11,500 miles.
<b>Warhead</b>	Nuclear (single RV)

# Hound Dog

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The Hound Dog (GAM-77/AGM-28) was a standoff, air-to-surface attack missile operational with the Strategic Air Command from 1961 to 1976. The missile, built by North American Aviation, was initiated in the mid-1950s to increase the ability of B-52s to attack heavily defended targets by striking anti-aircraft defenses in the path of the aircraft. All B-52G/H aircraft were equipped to carry two Hound Dog missiles on wing pylons between their fuselage and inboard engine nacelles. The B-52 could use the Hound Dog engines for added power on takeoff or while in flight, and then refuel them from the aircraft's tanks before launching. The first Hound Dog was delivered to SAC in late 1959, with an initial operational capability being achieved in early 1961. Production ceased in 1963, with the SAC inventory reaching a peak of 593 in that year.

The missile had a sleek aerodynamically attractive configuration with small canard foreplanes, a delta wing, and a small tail fin with rudder. A turbojet engine was mounted in a pod under the after fuselage. The Hound Dog had an inertial navigation system, updated before launching by the B-52's system, and some models were fitted with anti-radar and terrain-following systems. Maximum speed was Mach 2.1 with an altitude spectrum ranging from 55,000 feet down to tree-top level.

*Designation:* Originally designated GAM-77 (for Ground Attack Missile); subsequently changed to AGM-28 (for Air-to-Ground Missile).

*Status:* Retired; first flight 1959; operational in SAC from 1961 until 1976.

*Characteristics:*

<b>Weight</b>	10,140 lbs.
<b>Dimensions</b>	Span 12 ft., length 42.5 ft., diameter 28 in.
<b>Propulsion</b>	1 Pratt & Whitney J52-6 turbojet (7,500 lbs. static thrust)
<b>Range</b>	500+ miles on most flight profiles; 700 miles on hi-hi flight profile
<b>Warhead</b>	Nuclear (W-28, yield approx. 1 megaton)



**Two AGM-28 Hound Dog missiles on B-52 wing pylons.**

# Jupiter

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The Jupiter was one of two Intermediate Range Ballistic Missiles (IRBM) deployed by the United States, the other being the Thor. The missile was developed by the ex-German team under Wernher von Braun at Redstone Arsenal. It was envisioned as an Army missile and in late 1955 the Navy was directed to adapt the missile for launching from surface ships and possibly submarines. This was considered most hazardous with respect to handling liquid fuels aboard ship and the effects of ship motion in handling a 60-foot-long missile. In early 1957, Secretary of Defense Robert McNamara assigned all weapons with a range of more than 200 miles to the Air Force, and the Navy subsequently abandoned Jupiter in favor of the solid-propellant Polaris missile. From 1960 onward, 30 missiles were deployed to Italy and another 30 to Turkey for joint USAF-local operation within NATO. However, the missiles in Turkey were never fully operational, and the entire program was disbanded in 1965.

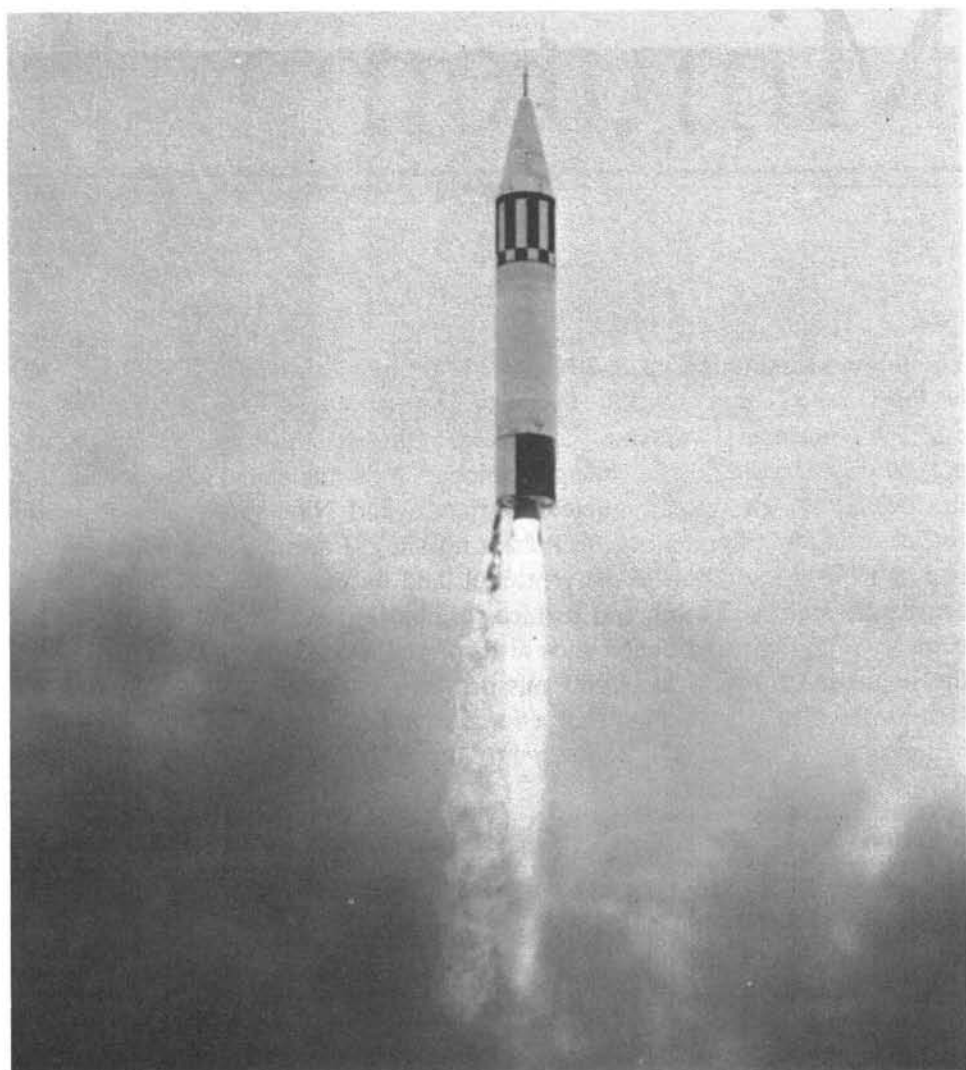
The missile had a conventional configuration with inertial navigation. It was produced at the Army's Michigan Missile Plant, operated by the Chrysler Corporation, with production deliveries beginning in November 1957. Components were tested on modified Redstone missiles called Jupiter-A.

*Designation:* Originally designated SM-78 in the Strategic Missile series, the Jupiter later became PGM-19 (soft pad/surface attack/missile).

*Status:* Retired; first flight 1957; operational from 1960 to 1965 (forward based in Italy and Turkey).

## *Characteristics:*

<b>Weight</b>	110,000 lbs.
<b>Dimensions</b>	Length 60.1 ft., diameter 105 in.
<b>Propulsion</b>	1 North American Rocketdyne S-3 (150,000 lbs. static thrust); liquid oxygen fuel
<b>Range</b>	1,976 miles
<b>Warhead</b>	Nuclear (single RV, yield approx. 1 megaton)



**Jupiter IRBM launch.**



# Minuteman

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The Boeing Minuteman (HSM-80/LCM-30) is the principal ICBM operated by the United States, with more having been produced than all other Western intercontinental missiles combined. It was the first USAF solid-propellant strategic missile, being developed from the mid-1950s because of the availability of smaller nuclear warheads and Navy progress with solid rocket fuels (first applied to the Polaris missile). Formal development began late in 1958. In addition to conventional land basing, the USAF and Boeing considered railroad basing and surface ship basing options. However, deployment was limited to hardened silos at dispersed sites. During the early 1960s the deployment of up to 3,000 missiles was considered, but Secretary of Defense McNamara directed that a force of 1,000 weapons be built, the last being deployed in 1967. Subsequently upgraded, the current Minuteman ICBM force consists of:

<i>Location</i>	<i>Minuteman II</i>	<i>Minuteman III</i>
Malmstrom AFB, Montana	150	50
Ellsworth AFB, South Dakota	150	—
Minot AFB, North Dakota	—	150
Whiteman AFB, Missouri	150	—
Warren AFB, Wyoming	—	200
Grand Forks AFB, North Dakota	—	150

A three-stage missile, the Minuteman's second and third stages have a smaller diameter than the first, giving the weapon an easily identified configuration. The missile has solid propellants for all stages with the Minuteman III having a liquid-propellant Post Boost Vehicle or "bus" for its multiple warhead. The Minuteman is fitted with inertial guidance with a high degree of early solid-state technology and sub-miniature digital computers. Several models of the Minuteman have been developed and deployed, providing a continuous updating of the 1,000-missile force:

Minuteman I	LGM-30A	original deployed configuration
Minuteman II	LGM-30B	titanium second-stage case with increased range
	LGM-30F	larger missile with improved second stage and guidance with longer range
Minuteman III	LGM-30G	improved third stage with multiple warhead



**Minuteman I ICBM launch.**

*Designation:* Briefly designated HSM-80 (silo stored/surface attack/missile), but deployed as LGM-30 (silo launched/surface attack/missile).

*Status:* Operational; first flight 1959; operational in SAC from 1962 onward with 450 Minuteman II and 550 Minuteman III missiles in service.

*Characteristics:*

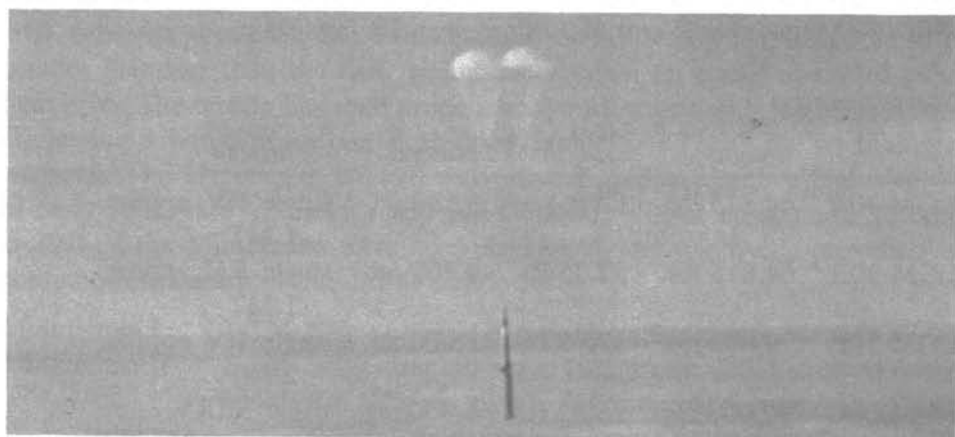
	<i>Weight</i>	<i>Length</i>	<i>Range</i>	<i>Warhead</i>
LGM-30A	64,815 lbs.	60 ft.	6,200 mi.	single RV approx. 1 MT
LGM-30B	64,815 lbs.	55.75 ft.	6,200 mi.	single RV approx. 1 MT
LGM-30F	70,000 lbs.	59.75 ft.	7,000 mi.	single RV approx. 2 MT
LGM-30G	70,000 lbs.	59.75 ft.	8,000 mi.	triple MIRV approx. 200 KT each

Part of the LGM-30G force is being modernized with the Mk-12A warhead carrying three MIRVs with a yield of approx. 350 KT each (W-78).

*Propulsion:* LGM-30G: first stage Thiokol M-55E (200,000 lbs. static thrust), second stage Aerojet SR-19 (60,000 lbst), third stage Aerojet and Thiokol SR73 (35,000 lbst); Bell Aerospace post boost vehicle (300 lbst for thrust) with Mk-12/12A warhead.



**Minuteman ICBM is launched from a C-5A transport aircraft during airborne test launch.**



**Minuteman ICBM is lowered by parachute after being test launched from C-5A aircraft. Moments later the missile's engines were ignited.**



**Minuteman ICBM in test launch silo; note technician at right of missile.**

# MX

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The MX advanced ICBM program was initiated in the mid-1970s in response to increasing concern over a potential Soviet ability to destroy a large part of the fixed Minuteman ICBM force. From the outset, the MX was conceived as a mobile missile, and this characteristic has caused considerable controversy and delays. Several mobile basing schemes have been considered, including moving the missiles on rail in buried trenches; periodically moving some 300 missiles among 6,000 underground silos (i.e., one missile for each 20 "holes"); carrying some of the missiles in cargo planes on airborne alert during a crisis; and shallow trenches, with the missiles being moved by rail in a scheme that calls for 20 miles of track for each of 200 missiles. All of the schemes, and several variations, have met Congressional and public opposition because of the cost, SALT treaty verification problems, and, for some schemes, the resulting increase in potential Soviet missile warheads that would be targeted against the United States.

The MX design criteria, beyond mobility, included ICBM range with a payload of ten Mk-12A warheads. The missile will have a three-stage configuration plus a Post Boost Vehicle (PBV) to provide an MIRV capability. There have been proposals to make the first and third stages the same as the Navy's Trident submarine-missile (a two-stage, 6,000-mile weapon) to achieve cost and support benefits, but this concept has been rejected, as has surface ship basing of the MX. The following characteristics and schedules are tentative.

*Status:* Under development; first flight 1983; initial operational capability in 1986; and full deployment of 200 to 300 missiles by 1989.

## *Characteristics:*

<b>Weight</b>	190,000 lbs.
<b>Dimensions</b>	Length 71 ft., diameter 7.5 ft.
<b>Propulsion</b>	3-stage solid-fuel rocket
<b>Range</b>	Approx. 6,000-6,700 miles
<b>Warhead</b>	Nuclear (10 MIRV W-78, yield approx. 350 kilotons each)

# Quail

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The McDonnell Quail (GAM-72/ADM-20) was a decoy missile carried in SAC bombers to confuse enemy radars. Each Quail produced a radar "blip" similar to that produced by a B-52. Speed and altitude capabilities were similar to that of a B-52. Two Quails were carried in special racks in B-52 weapon bays without degrading the aircraft's weapon capability.

The Quail was fabricated of fiberglass and had small fins that remained in a folded position until it was ready for launching.

*Designation:* Originally GAM-72 in the USAF's missile designation series. Later changed to ADM-20 (Air/Decoy/Missile).

*Status:* Retired; first flight 1958; operational in SAC from 1960 until 1978.

## *Characteristics:*

<b>Weight</b>	1,100 lbs.
<b>Dimensions</b>	Span 5.5 ft., length 13 ft.
<b>Propulsion</b>	1 General Electric J85-7 turbojet (2,850 lbs. static thrust)
<b>Range</b>	265 miles
<b>Warhead</b>	None



ADM-20 Quail in flight.



# Snark

---

The Northrop Snark (SM-62) was an Intercontinental Cruise Missile (ICM), the only weapon of its type to be deployed in the strategic role by any nation. (The Germans had a development program for such a missile, designated A-10, during World War II.) Snark development began in 1946 and flight test vehicles began flying in 1951. In essence, the Snark was a pilotless bomber with a high-altitude, subsonic (615-mph) flight profile. Compared to contemporary bomber aircraft, the Snark offered low investment and operating costs, a small radar cross section, and a relatively large warhead. A major Snark development was planned. The first missile was declared operationally ready at Presque Isle AFB, Maine, on 18 March 1961. However, less than four months later, on 25 June 1961, the Snark force was deactivated, having been made obsolescent by the large U.S. strategic bomber and missile programs.

The missile had a long, sleek configuration with swept-back wings and a vertical fin stabilizer without any horizontal tail surfaces. Its guidance was self-contained, pre-set with inertial updating and thus unjammable. It had turbojet propulsion with two solid-propellant boosters for "zero-length"



SM-62 Snark in flight.



**SM-62 Snark being readied for flight.**

launching. As the missile approached the target the warhead was ejected from the airframe, achieving an ultimate velocity of about Mach 1 (the airframe would then begin to tumble and break up).

*Status:* Retired; first flight 1956; operational in 1961 with 30 missiles completed.

*Characteristics:*

<b>Weight</b>	59,936 lbs.
<b>Dimensions</b>	Span 42.25 ft., length 75.9 ft. (including sensing probe), height 15 ft.
<b>Propulsion</b>	1 Pratt & Whitney J57-P-17 turbojet (10,500 lbs. static thrust); 2 solid-fuel rocket boosters (130,000 lbst each)
<b>Range</b>	Approx. 6,000 miles
<b>Warhead</b>	Nuclear (yield approx. 20 megatons)

# SRAM

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The Short Range Attack Missile (SRAM) is an air-to-surface missile developed to extend the capabilities of the B-52. The weapon is also carried by the FB-111. The weapon, built by Boeing, is used against enemy radar and missile installations to improve the survivability of the strategic bombers. The B-52G/H aircraft can carry up to 20 SRAMs in internal rotary launcher and on wing pylons; the FB-111A can carry two SRAMs internally and four on wing pylons. The B-1 was to have carried 24 SRAMs.

The SRAM can be flown in several flight modes, including inertial guidance, low-level terrain following, and combinations of the two techniques. The weapon has a tapered, cylindrical body, with three small tail control surfaces. Its missile designation is AGM-69A.

*Status:* First flight 1969; operational from 1972 onward; approx. 1,200 in SAC FB-111 and B-52 bomb wings.

#### *Characteristics:*

<b>Weight</b>	2,230 lbs.
<b>Dimensions</b>	Length 14 ft., diameter 17½ in.
<b>Propulsion</b>	2-stage XSR-75-LP-1 solid-fuel rocket
<b>Range</b>	Approx. 100 miles
<b>Warhead</b>	Nuclear (W-69, yield approx. 200 kilotons)



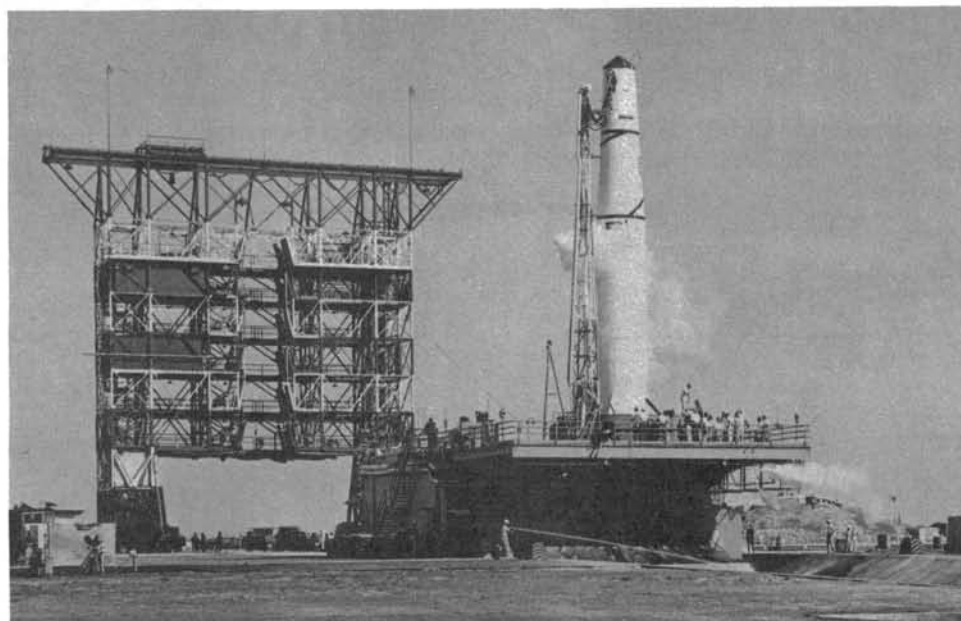
AGM-69A Short Range Attack Missiles on rotary dispenser in B-52 bomb bay.

# Thor

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The Douglas Thor was one of two IRBMs developed by the United States, being a USAF weapon developed after the Army's Jupiter IRBM. (The Jupiter was deployed under the auspices of the USAF.) Formal development of the Thor, SM-75/PGM-17, began in late 1955 having been given a high national priority. The contract for development of the Thor was awarded to Douglas Aircraft on 27 December 1955, and the first missile was delivered to the Air Force in October 1956—a record development schedule for a modern weapon system. The first Thor missiles became operational in England in December 1959 under a joint USAF-Royal Air Force “two-key” program. The entire force of 20 squadrons, each with three missiles, was operational by 1961. The subsequent U.S. intercontinental missile program and the British decision to deploy Polaris submarines as that nation's primary deterrent force led to the phasing out of the Thor program, with the last missiles being deactivated on 20 December 1963.

The Thor was developed with the employment of Atlas ICBM technology where possible to reduce development time. The use of an Atlas-C re-entry



**SM-75 Thor IRBM.**

vehicle resulted in the Thor having a "flat-top" configuration. The single, liquid-propellant booster was supplemented by two vernier rockets on the side to control roll and adjustment of velocity after engine cutoff. Inertial guidance was provided.

*Designation:* The Thor was initially assigned the designation SM-75 (Strategic Missile); subsequently changed to PGM-17 (soft pad/surface attack/missile).

*Status:* Retired; first flight 1956; operational from 1959 to 1963 (forward based in England).

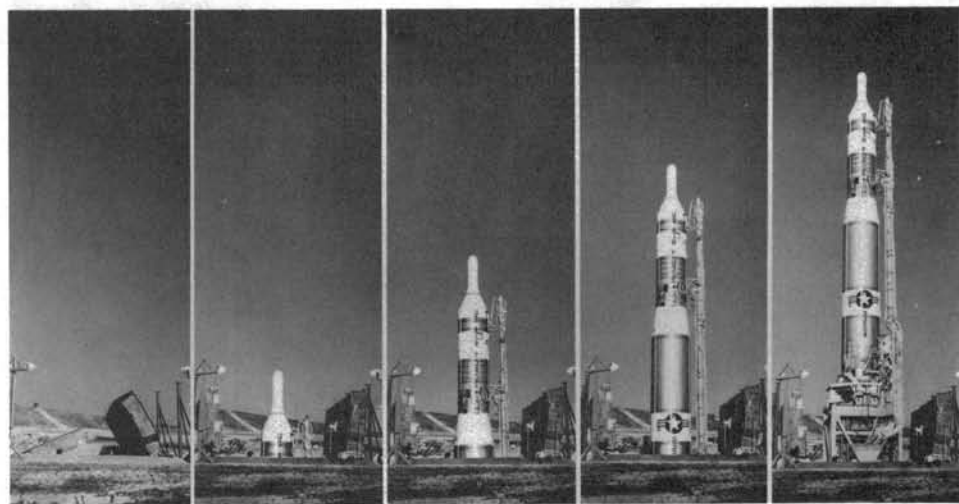
*Characteristics:*

<b>Weight</b>	105,000 lbs.
<b>Dimensions</b>	Length 65 ft., diameter 8 ft.
<b>Propulsion</b>	1 North American Rocketdyne LR-79 (150,000 lbs. static thrust); liquid oxygen fuel
<b>Range</b>	2,000 miles
<b>Warhead</b>	Nuclear (single RV)

# Titan

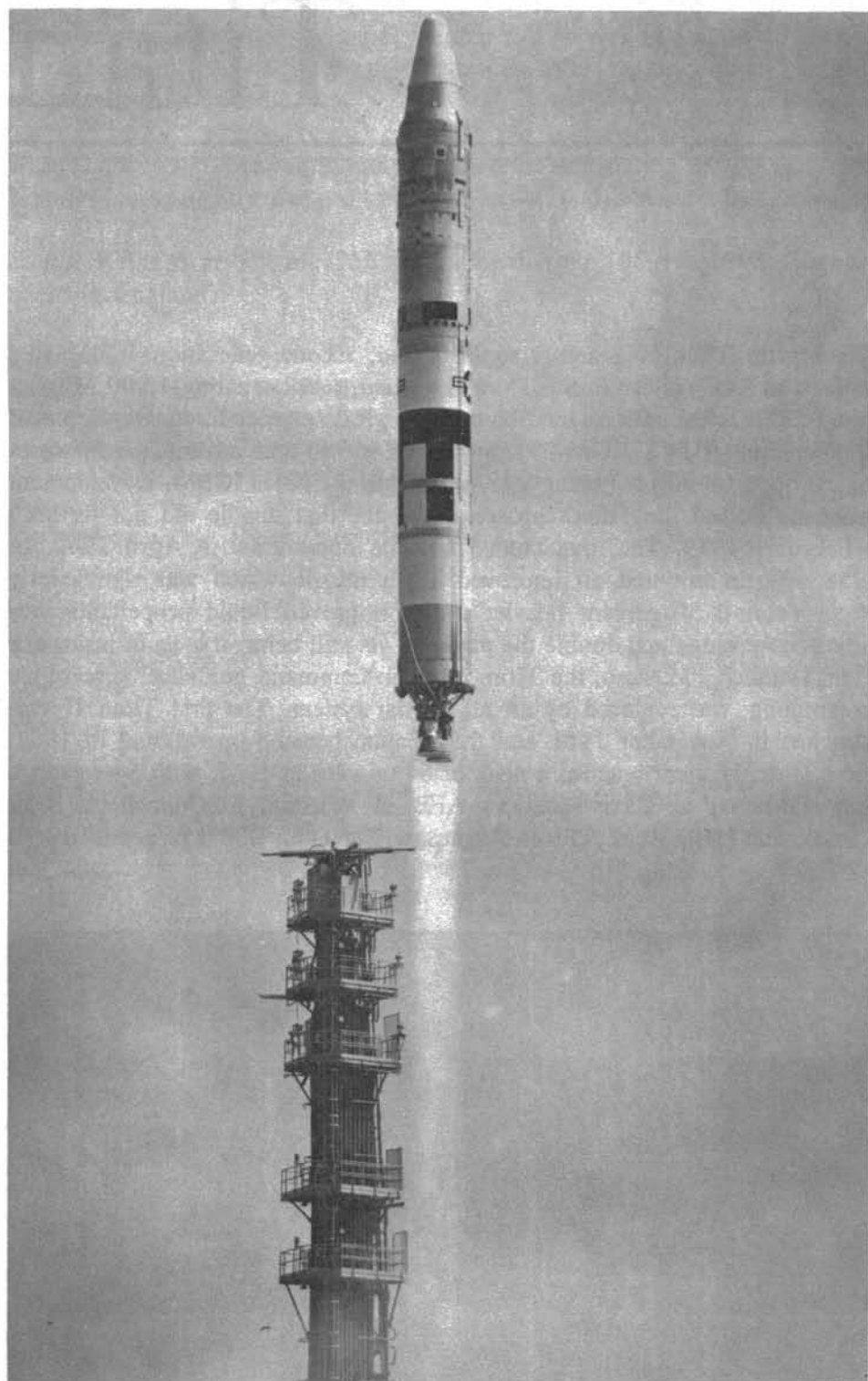
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The Martin Titan is a highly sophisticated, second-generation ICBM that remains in SAC service in the Titan II variant, supplementing 1,000 Minuteman ICBMs in the nation's land-based strategic deterrence force. Development of the Titan, (SM-68/LGM-25), began in 1955 to take advantage of technological opportunities not being incorporated in the Atlas ICBM. Development problems slowed the Titan's progress, and the first missile did not fly until 6 February 1959. The first Titan I became operational in April 1962. In 1958, Martin initiated an improved Titan missile which was significantly larger (almost 50 percent heavier), with improved liquid propellants providing more range and double the payload, yet still being able to fit inside the Titan I launch silo. Also, the Titan I's radio command guidance, susceptible to jamming, was replaced by an all-inertial system. The first Titan II was launched in November 1961 and the weapon became operational in 1963. Titan II deployment reached a peak of 64 missiles in 1967, with 54 weapons now silo-based at Davis-Monthan AFB in Arizona, McConnell AFB in Kansas, and Little Rock AFB in Arkansas. The Titan II will be retained well



SM-68 Titan I ICBM being raised from underground silo.





**SM-68 Titan II ICBM launch.**

into the 1980s because of its large yield that provides a hard-target kill capability. (Titan I deployments peaked at 63 missiles in 1963, the last being phased out early in 1965.)

The Titan II is a two-stage missile with a cylindrical body (the Titan I had a ten-foot diameter first stage and eight-foot diameter second stage.) There are four small vernier rockets on the second stage to correct speed and trajectory. Inertial guidance is fitted, with periodic updates having been made to improve reliability and accuracy. The warhead is the largest ever fitted in a U.S. missile.

*Designation:* The Titan was originally designated SM-65 (Strategic Missile); changed to HGM-19 (silo stored/surface attack/missile). The Titan I was SM-65A/HGM-19A), and the Titan II had the -B and -C variants.

*Status:* Titan I first flight 1959, Titan II first flight 1961; 54 Titan IIs operational with SAC.

*Characteristics:* (LGM-25C)

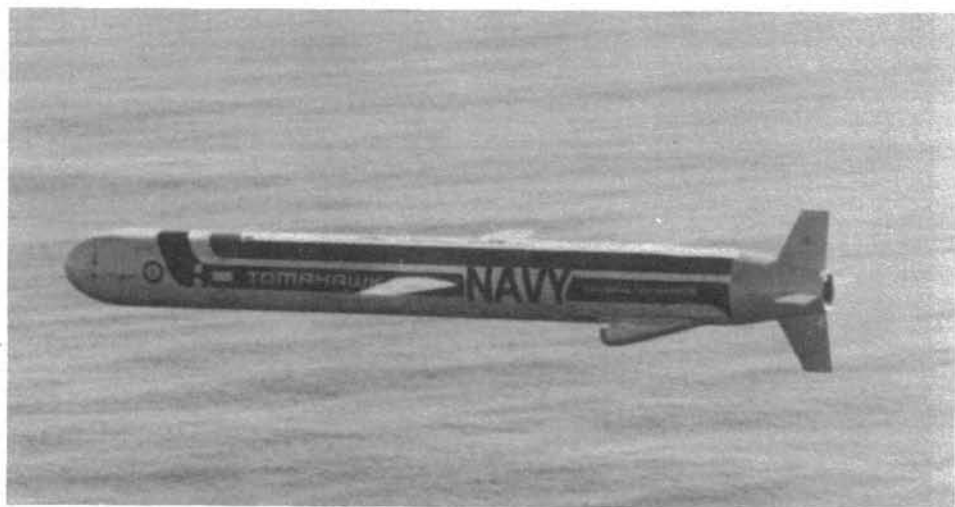
<b>Weight</b>	330,000 lbs.
<b>Dimensions</b>	Length 103 ft., diameter 10 ft.
<b>Propulsion</b>	1 Aerojet General LR91 sustainer engine (100,000 lbs. static thrust); 1 Aerojet General LR87 booster engine (430,000 lbst); liquid fuel
<b>Range</b>	9,300 miles
<b>Warhead</b>	Nuclear (single RV Mk-6, yield approx. 10 megatons)

# Tomahawk

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The General Dynamics AGM-109 Tomahawk is a Navy-developed missile suitable for launching from surface ships, submarines, and aircraft in the anti-ship or strategic roles. The missile is an alternative to the Boeing AGM-86B ALCM for use by the B-52G as a stand-off attack weapon during the 1980s. (See ALCM listing for potential program size and schedule.) Tomahawk development began in the early 1970s to provide a long-range missile in two variants for the anti-ship and strategic attack roles. The latter variant has the Harpoon's active radar/homing guidance, a 1,000-pound conventional warhead, and a range greater than 300 miles. Both versions have the same mid and after bodies and a Williams turbofan engine, providing a high subsonic speed and a low-altitude flight profile. The ship/submarine launched BGM-109 is in advanced development, although no deployment decisions had been made when this book went to press.

The requirement for multi-platform launch gives the Tomahawk a torpedo-shaped configuration that is compatible with standard 21-inch-diameter submarine tubes and launch tubes that can be fitted on the decks of warships.



BGM-109 Tomahawk in flight. (U.S. Navy photo)

The missile has a combination inertial and Terrain Contour Matching (TERCOM) guidance. After launching, the engine inlet extends down from the after fuselage, and stub wings and four tail fins emerge to provide aerodynamic lift and control.

*Status:* Development; first flight (anti-ship and land-attack variants): 1976; competitor with AGM-86B ALCM for use by SAC B-52G force and possible advanced Cruise Missile Carrier Aircraft (CMCA).

*Characteristics:* (AGM-109)

<b>Weight</b>	Approx. 3,200 lbs.
<b>Dimensions</b>	Span 8.3 ft., length 20.5 ft., diameter 20.9 in.
<b>Propulsion</b>	1 Williams F107-WR-400 turbofan (approx. 600 lbs. static thrust)
<b>Range</b>	Approx. 2,300 miles
<b>Warhead</b>	Nuclear (W-80, yield approx. 200 kilotons)



BGM-109 Tomahawk with wings and tail fins extended.

## Glossary

ACCS	Airborne Command and Control Squadron
ALCM	Air Launched Cruise Missile
ADC	Air Defense Command; later Aerospace Defense Command
AFCON	Headquarters USAF Controlled (unit)
AMSA	Advanced Manned Strategic Aircraft
BMEWS	Ballistic Missile Early Warning System
CINCSAC	Commander-in-Chief Strategic Air Command
CONUS	Continental United States
ECM	Electronic Countermeasures
EW	Electronic Warfare
FEAF	Far East Air Force
ICBM	Intercontinental Ballistic Missile
ICM	Intercontinental Missile
IRBM	Intermediate Range Ballistic Missile
JSTPS	Joint Strategic Target Planning Staff
MAJCOM	Major Command Controlled (unit)
NASA	National Aeronautics and Space Administration
NEAC	Northeast Air Command
NEACP	National Emergency Airborne Command Post
NOA	Non-operational Aircraft
NORAD	North American Air Defense Command
O&M	Operations and Maintenance
PACAF	Pacific Air Force
PACCS	Post Attack Command Control System
POL	Petroleum, Oil, and Lubricants
RTU	Replacement Training Unit
SAC	Strategic Air Command
SACCS	SAC Automated Command Control System
SAM	Surface-to-Air Missile
SEA	Southeast Asia
SIOP	Single Integrated Operational Plan
SRAM	Short Range Attack Missile
TAC	Tactical Air Command
TDY	Temporary Duty
UE	Unit Equipment
USAF	U.S. Air Force
USAFE	U.S. Air Forces Europe

Today the Strategic Air Command has more missiles than bombers, yet its distinguished part in aviation history includes development or the use of the B-29, B-36, B-47, B-70, FB111, and the B-1. Moreover, its pioneering in missile developments ushered in the age of aerospace with such early giants as Titan, Atlas, and Thor.

#### About the Editor

Mr. Polmar has written extensively about Soviet and U.S. military affairs. His articles have been published in *Air Force Magazine*, *Flying Review International*, *Brassey's Annual*, and the *Encyclopedia Britannica*, among others. While assistant Editor of the U.S. Naval Institute *Proceedings* from 1963 to 1967, he lectured at the Naval Academy and was a consultant and regular contributor to the U.S. Air Force Association's magazines, *Air Force/Space Digest* and *Aerospace International*. He has written nine books, among which are *Aircraft Carriers: A History of Carrier Aviation and Its Influence on World Events*, *Strategic Weapons: An Introduction*, and *World Combat Aircraft Directory*. He edited the U.S. section of *Jane's Fighting Ships* from 1966 to 1976, and *Soviet Naval Developments* in 1979.

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